Big Bang-Fuzion series

MS-7582 (v1.x) Mainboard

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G52-75821XB

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Revision History

Revision	Revision History	Date
V1.0	First release for PCB 1.X	November 2009
V1.1	Update spec	January 2010
V1.2	Update spec	June 2010

Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.

- Visit the MSI website for FAQ, technical guide, BIOS updates, driver updates, and other information: ***http://www.msi.com/index.php?func=service***
- Contact our technical staff at: ***http://ocss.msi.com***

Safety Instructions

- Always read the safety instructions carefully.
- Keep this User's Manual for future reference.
- Keep this equipment away from humidity.
- Lay this equipment on a reliable flat surface before setting it up.
- The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.
- Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
- Always Unplug the Power Cord before inserting any add-on card or module.
- All cautions and warnings on the equipment should be noted.
- Never pour any liquid into the opening that could damage or cause electrical shock.
- If any of the following situations arises, get the equipment checked by service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work well or you can not get it work according to User's Manual.
  - The equipment has dropped and damaged.
  - The equipment has obvious sign of breakage.

  DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60°C (140°F), IT MAY DAMAGE THE EQUIPMENT.

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CAUTION: Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

警告使用者:

這是甲類資訊產品，在居住的環境中使用時，可能會造成無線電干擾，在這種情況下，使用者會被要求採取某些適當的對策。

廢電池請回收

For better environmental protection, waste batteries should be collected separately for recycling special disposal.

FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the measures listed below.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) this device may not cause harmful interference, and
2) this device must accept any interference received, including interference that may cause undesired operation.

WEEE (Waste Electrical and Electronic Equipment) Statement

ENGLISH

To protect the global environment and as an environmentalist, MSI must remind you that...

Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of "electrical and electronic equipment" cannot be discarded as municipal waste anymore and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life. MSI will comply with the product take back requirements at the end of life of MSI-branded products that are sold into the EU. You can return these products to local collection points.

DEUTSCH

Hinweis von MSI zur Erhaltung und Schutz unserer Umwelt

Gemäß der Richtlinie 2002/96/EG über Elektro- und Elektronik-Altgeräte dürfen Elektro- und Elektronik-Altgeräte nicht mehr als kommunale Abfälle entsorgt werden. MSI hat europaweit verschiedene Sammel- und Recyclingunternehmen beauftragt, die in die Europäische Union in Verkehr gebrachten Produkte, am Ende seines Lebenszyklus zurückzunehmen. Bitte entsorgen Sie dieses Produkt zum gegebenen Zeitpunkt ausschliesslich an einer lokalen Altgerätesammelstelle in Ihrer Nähe.

FRANÇAIS

En tant qu'écologiste et afin de protéger l'environnement, MSI tient à rappeler ceci...

Au sujet de la directive européenne (EU) relative aux déchets des équipement électriques et électroniques, directive 2002/96/EC, prenant effet le 13 août 2005, que les produits électriques et électroniques ne peuvent être déposés dans les décharges ou tout simplement mis à la poubelle. Les fabricants de ces équipements seront obligés de récupérer certains produits en fin de vie. MSI prendra en compte cette exigence relative au retour des produits en fin de vie au sein de la communauté européenne. Par conséquent vous pouvez retourner localement ces matériels dans les points de collecte.

РУССКИЙ

Компания MSI предпринимает активные действия по защите окружающей среды, поэтому напоминаем вам, что....

В соответствии с директивой Европейского Союза (ЕС) по предотвращению загрязнения окружающей среды использованным электрическим и электронным оборудованием (директива WEEE 2002/96/EC), вступающей в силу 13 августа 2005 года, изделия, относящиеся к электрическому и электронному оборудованию, не могут рассматриваться как бытовой мусор, поэтому производители вышеперечисленного электронного оборудования обязаны принимать его для переработки по окончании срока службы. MSI обязуется соблюдать требования по приему продукции, проданной под маркой MSI на территории ЕС, в переработку по окончании срока службы. Вы можете вернуть эти изделия в специализированные пункты приема.

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ESPAÑOL

MSI como empresa comprometida con la protección del medio ambiente, recomienda:

Bajo la directiva 2002/96/EC de la Unión Europea en materia de desechos y/o equipos electrónicos, con fecha de rigor desde el 13 de agosto de 2005, los productos clasificados como “eléctricos y equipos electrónicos” no pueden ser depositados en los contenedores habituales de su municipio, los fabricantes de equipos electrónicos, están obligados a hacerse cargo de dichos productos al termino de su período de vida. MSI estará comprometido con los términos de recogida de sus productos vendidos en la Unión Europea al final de su periodo de vida. Usted debe depositar estos productos en el punto limpio establecido por el ayuntamiento de su localidad o entregar a una empresa autorizada para la recogida de estos residuos.

NEDERLANDS

Om het milieu te beschermen, wil MSI u eraan herinneren dat….

De richtlijn van de Europese Unie (EU) met betrekking tot Vervuiling van Electrische en Electronische producten (2002/96/EC), die op 13 Augustus 2005 in zal gaan kunnen niet meer beschouwd worden als vervuiling. Fabrikanten van dit soort producten worden verplicht om producten retour te nemen aan het eind van hun levenscyclus. MSI zal overeenkomstig de richtlijn handelen voor de producten die de merknaam MSI dragen en verkocht zijn in de EU. Deze goederen kunnen geretourneerd worden op lokale inzamelingspunten.

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SRPSKI

Da bi zaštitili prirodnu sredinu, i kao preduzeće koje vodi računa o okolini i prirodnoj sredini, MSI mora da vas podesti da...

Po Direktivi Evropske unije (“EU”) o odbačenoj ekektronskoj i električnoj opremi, Direktiva 2002/96/EC, koja stupa na snagu od 13. Avgusta 2005, proizvodi koji spadaju pod “elektronsku i električnu opremu” ne mogu više biti odbačeni kao običan otpad i proizvođači ove opreme biće prinuđeni da uzmu natrag ove proizvode na kraju njihovog uobičajenog veka trajanja. MSI će poštovati zahtev o preuzimanju ovakvih proizvoda kojima je istekao vek trajanja, koji imaju MSI oznaku i koji su prodati u EU. Ove proizvode možete vratiti na lokalnim mestima za prikupljanje.

POLSKI

Aby chronić nasze środowisko naturalne oraz jako firma dbająca o ekologię, MSI przypomina, że...

Zgodnie z Dyrektywą Unii Europejskiej (“UE”) dotyczącą odpadów produktów elektrycznych i elektronicznych (Dyrektywa 2002/96/EC), która wchodzi w życie 13 sierpnia 2005, tzw. “produkty oraz wyposażenie elektryczne i elektroniczne “ nie mogą być traktowane jako śmieci komunalne, tak więc producenci tych produktów będą zobowiązani do odbierania ich w momencie gdy produkt jest wycofywany z użycia. MSI wypełni wymagania UE, przyjmując produkty (sprzedawane na terenie Unii Europejskiej) wycofywane z użycia. Produkty MSI będzie można zwracać w wyznaczonych punktach zbiorczych.

TÜRKÇE

Çevreci özelliğiyle bilinen MSI dünyada çevreyi korumak için hatırlatır:

Avrupa Birliği (AB) Kararnamesi Elektrik ve Elektronik Malzeme Atığı, 2002/96/EC Kararnamesi altında 13 Ağustos 2005 tarihinden itibaren geçerli olmak üzere, elektrikli ve elektronik malzemeler diğer atıklar gibi çöpe atılamayacak ve bu elektonik cihazların üreticileri, cihazların kullanım süreleri bittikten sonra ürünleri geri toplamakla yükümlü olacaktır. Avrupa Birliği'ne satılan MSI markalı ürünlerin kullanım süreleri bittiğinde MSI ürünlerin geri alınması isteği ile işbirliği içerisinde olacaktır. Ürünlerinizi yerel toplama noktalarına bırakabilirsiniz.

ČESKY

Záleží nám na ochraně životního prostředí - společnost MSI upozorňuje...

Podle směrnice Evropské unie ("EU") o likvidaci elektrických a elektronických výrobků 2002/96/EC platné od 13. srpna 2005 je zakázáno likvidovat "elektrické a elektronické výrobky" v běžném komunálním odpadu a výrobci elektronických výrobků, na které se tato směrnice vztahuje, budou povinni odebírat takové výrobky zpět po skončení jejich životnosti. Společnost MSI splní požadavky na odebírání výrobků značky MSI, prodávaných v zemích EU, po skončení jejich životnosti. Tyto výrobky můžete odevzdat v místních sběrnách.

MAGYAR

Annak érdekében, hogy környezetünket megvédjük, illetve környezetvédőként fellépve az MSI emlékezteti Önt, hogy ...

Az Európai Unió („EU") 2005. augusztus 13-án hatályba lépő, az elektromos és elektronikus berendezések hulladékairól szóló 2002/96/EK irányelve szerint az elektromos és elektronikus berendezések többé nem kezelhetőek lakossági hulladékként, és az ilyen elektronikus berendezések gyártói kötelessé válnak az ilyen termékek visszavételére azok hasznos élettartama végén. Az MSI betartja a termékvisszavétellel kapcsolatos követelményeket az MSI márkanév alatt az EU-n belül értékesített termékek esetében, azok élettartamának végén. Az ilyen termékeket a legközelebbi gyűjtőhelyre viheti.

ITALIANO

Per proteggere l'ambiente, MSI, da sempre amica della natura, ti ricorda che….

In base alla Direttiva dell'Unione Europea (EU) sullo Smaltimento dei Materiali Elettrici ed Elettronici, Direttiva 2002/96/EC in vigore dal 13 Agosto 2005, prodotti appartenenti alla categoria dei Materiali Elettrici ed Elettronici non possono più essere eliminati come rifiuti municipali: i produttori di detti materiali saranno obbligati a ritirare ogni prodotto alla fine del suo ciclo di vita. MSI si adeguerà a tale Direttiva ritirando tutti i prodotti marchiati MSI che sono stati venduti all'interno dell'Unione Europea alla fine del loro ciclo di vita. È possibile portare i prodotti nel più vicino punto di raccolta

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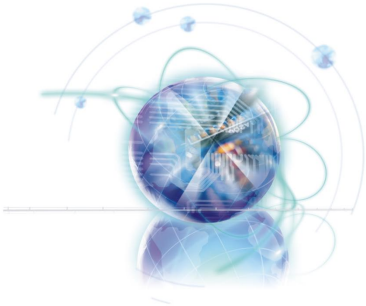

Chapter 1

Getting Started

Thank you for choosing the **Big Bang-Fuzion** Series (MS-7582 v1.X) ATX mainboard. The **Big Bang-Fuzion** Series mainboards are based on **Intel® P55** chipsets for optimal system efficiency. Designed to fit the advanced **Intel® i5/ i7 LGA1156** processor, the **Big Bang-Fuzion** Series deliver a high performance and professional desktop platform solution.

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Mainboard Specifications

Processor Support

- Intel® Core™ i7 and Core™ i5 (Lynnfield & Clarkdale) processor in the LGA1156 package
  (For the latest information about CPU, please visit http://www.msi.com/index.php?func=cpuform2)

Base Clock

- 133 MHz

Chipset

- Intel® P55 / Lucid® LT24102 chipset

Memory Support

- 4 DDR3 DIMMs support DDR3 2133 *(OC)/ 2000 *(OC)/ 1800 *(OC)/1600 *(OC)/ 1333/ 1066 DRAM (16GB Max)
- Supports Dual-Channel mode
  *(For more information on compatible components, please visit http://www.msi.com/index.php?func=testreport)

LAN

- Supports Dual LAN (10/100/1000) by Realtek® RTL8111DL

IEEE 1394

- Chip integrated by VIA® VT6315N
- Transfer rate is up to 400Mbps

Audio

- QuantumWave™ Audio Card
- Creative EAX® ADVANCED HD 5.0
- THX TruStudio PC™
- Creative ALchemy
- 7.1 Channel High Definition Audio Codec with jack sensing
- Realtek® ALC889
- Compliant with Azalia 1.0 Spec
- Supports1x S/PDIF out header
- Supports Coaxial/Optical S/PDIF out ports on rear

IDE

- 1 IDE port by JMicron® JMB363
- Supports Ultra DMA 66/100/133 mode
- Supports PIO, Bus Master operation mode

SATA

- 6 SATA 3Gb/s (SATA1~6) ports by Intel® P55
- 4 SATA 3Gb/s (SATA7/ 8/ 9/ 10) ports by two JMicron® JMB322
- 2 eSATA/ USB Combo ports (back panel) by JMicron® JMB362

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RAID

- SATA1~6 support Intel® Matrix Storage Technology (AHCI/ RAID 0/ 1/ 5/ 10) by Intel® P55

Hardware RAID

- SATA7 & SATA8 support RAID 0/ 1 & JBOD mode by 1st JMicron® JMB322
- SATA9 & SATA10 support RAID 0/ 1 & JBOD mode by 2nd JMicron® JMB322

Connectors

- Back panel
  - 1 PS/2 keyboard port
  - 1 PS/2 mouse port
  - 1 D-LED3 panel connector (optional)
  - 8 USB 2.0 ports
  - 1 IEEE 1394 port
  - 2 eSATA/ USB Combo ports
  - 2 LAN ports
- On-Board
  - 2 USB 2.0 connectors
  - 1 IEEE 1394 connector
  - 1 Chassis Intrusion connector
  - 1 TPM Module connector (optional)
  - 1 Green Power Genie connector (optional)
  - 1 Over-Voltage switch & 1 set voltage check point
  - 1 Power button
  - 1 Reset button
  - 1 Green Power button
  - 1 Clear CMOS button
  - 1 OC Genie button
  - 1 CPU Phase LED panel

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Slots

- 3 PCI Express 2.0 x16 slots
  - PCI_E2/ PCI_E4/ PCI_E5 will be x16/ x16/ x0 or x16/ x8/ x8
  - Support Multi-GPU computing technology
- 2 PCI Express 2.0 x1 slots
  - Only PCI_E1 supports installing the Realtek® Audio card
- 2 PCI 2.2 slots, support 3.3V/ 5V PCI bus Interface

Form Factor

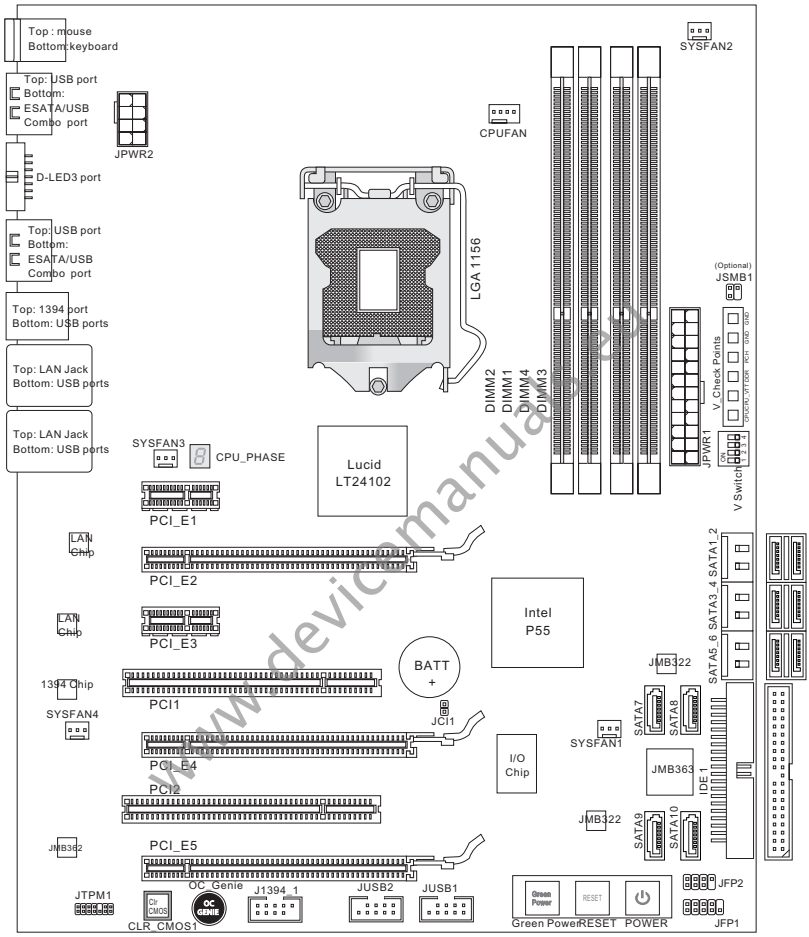
- ATX (30.5cm X 24.4 cm)

Mounting

- 9 mounting holes

If you need to purchase accessories and request the part numbers, you could search the product web page and find details on our web address below
http://www.msi.com/index.php

Mainboard Layout



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Big Bang-Fuzion Series (MS-7582 v1.X) ATX Mainboard

Packing Checklist

MSI mainboard

MSI Driver/Utility DVD

SATA Cable

Power Cable

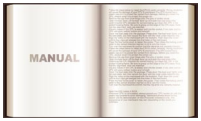
USB Bracket (Optional)

Standard Cable for IDE Devices

V-Check Cable

QuantumWave Audio Card

Back IO Shield



User's Guide

* The pictures are for reference only and may vary from the packing contents of the product you purchased.

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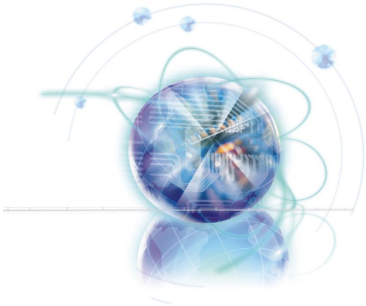

Chapter 2

Hardware Setup

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

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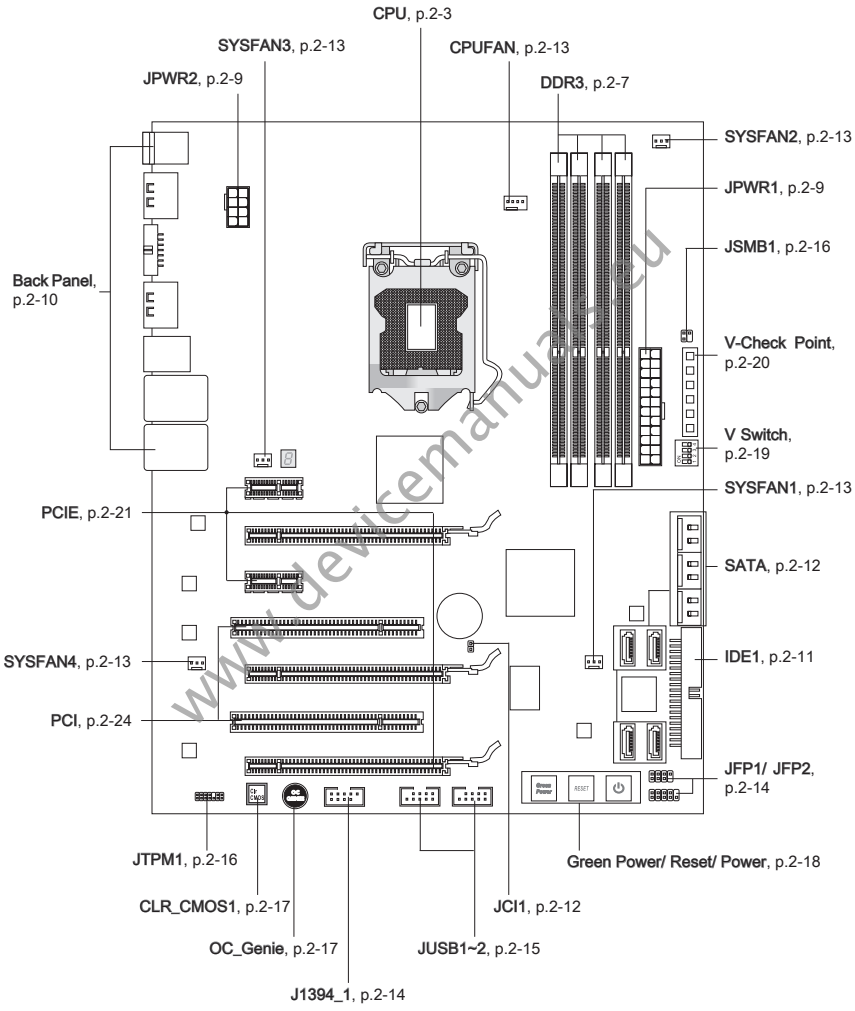
Quick Components Guide



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CPU (Central Processing Unit)

When you are installing the CPU, make sure to install the cooler to prevent overheating. If you do not have the CPU cooler, consult your dealer before turning on the computer. For the latest information about CPU, please visit http://www.msi.com/index.php?func=cpuform2

Important

Overheating

Overheating will seriously damage the CPU and system. Always make sure the cooling fan can work properly to protect the CPU from overheating. Make sure that you apply an even layer of thermal paste (or thermal tape) between the CPU and the heatsink to enhance heat dissipation.

Replacing the CPU

While replacing the CPU, always turn off the ATX power supply or unplug the power supply's power cord from the grounded outlet first to ensure the safety of CPU.

Overclocking

This mainboard is designed to support overclocking. However, please make sure your components are able to tolerate such abnormal setting, while doing overclocking. Any attempt to operate beyond product specifications is not recommended. We do not guarantee the damages or risks caused by inadequate operation or beyond product specifications.

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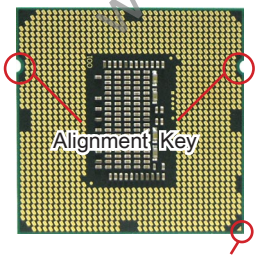
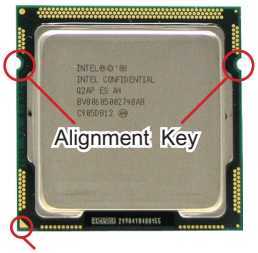
Introduction to LGA 1156 CPU

The pin-pad side of LGA 1156 CPU.



Yellow triangle is the Pin 1 indicator

The surface of LGA 1156 CPU. Remember to apply some thermal paste on it for better heat dispersion.



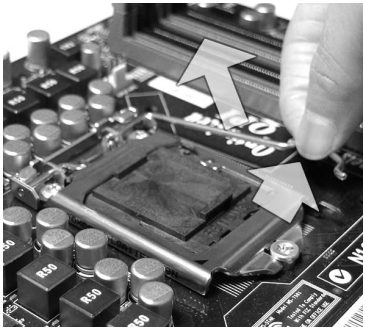
Yellow triangle is the Pin 1 indicator

CPU & Cooler Installation

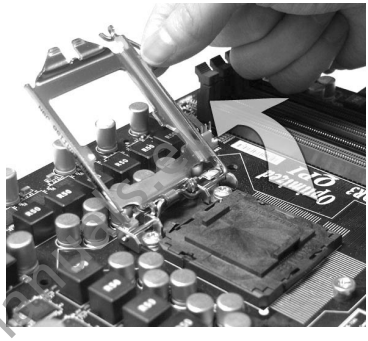
When you are installing the CPU, **make sure the CPU has a cooler attached on the top to prevent overheating**. Meanwhile, do not forget to apply some thermal paste on CPU before installing the heat sink/cooler fan for better heat dispersion.

Follow the steps below to install the CPU & cooler correctly. Wrong installation will cause the damage of your CPU & mainboard.

1. Open the load level.



2. Lift the load lever up to fully open position



3. The CPU socket has a plastic cap on it to protect the contact from damage. Before you install CPU, always cover it to protect the socket pin. Romove the cap (as the arrow shows).

4. After confirming the CPU direction for correct mating, put down the CPU in the socket housing frame. Be sure to grasp on the edge of the CPU base. Note that the alignment keys are matched.

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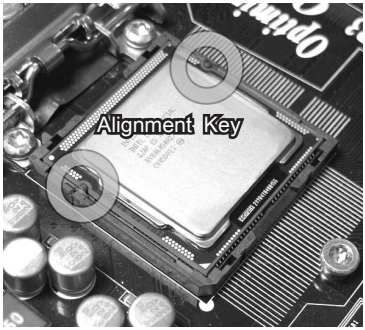
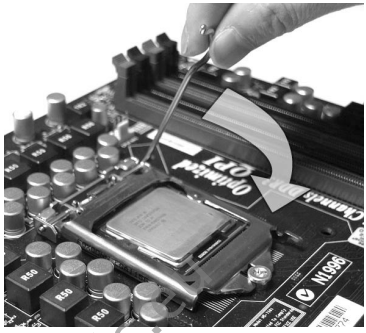
5. Visually inspect if the CPU is seated well into the socket. If not, take out the CPU with pure vertical motion and reinstall.

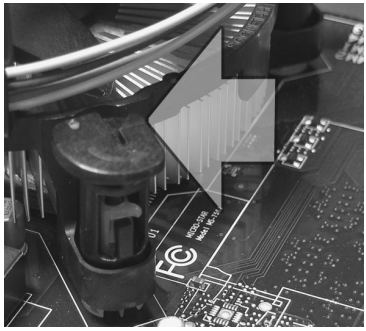


6. Engage the load lever while pressing down lightly onto the load plate.



7. Secure the lever near the hook end under the retention tab.

8. Make sure the four hooks are in proper position before you install the cooler.



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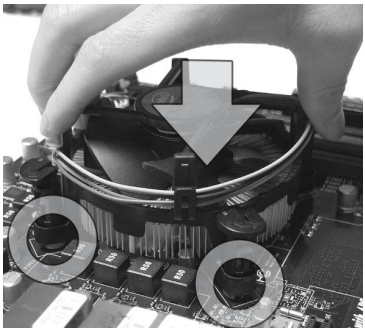
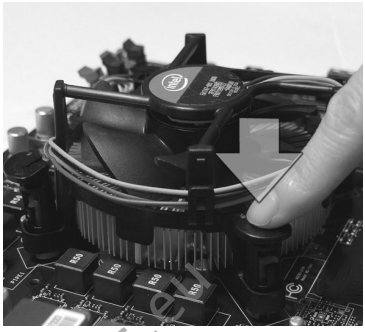
Important

- *Confirm if your CPU cooler is firmly installed before turning on your system.*
- *Do not touch the CPU socket pins to avoid damaging.*

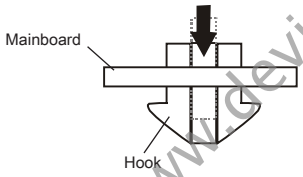
9. Align the holes on the mainboard with the heatsink. Push down the cooler until its four clips get wedged into the holes of the mainboard.



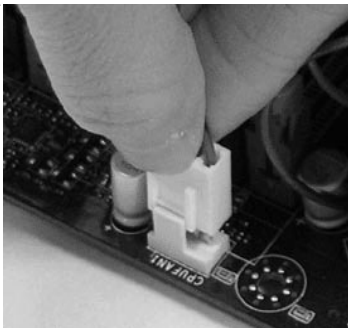
10. Press the four hooks down to fasten the cooler.



11. Turn over the mainboard to confirm that the clip-ends are correctly inserted.



12. Finally, attach the CPU Fan cable to the CPU fan connector on the mainboard.



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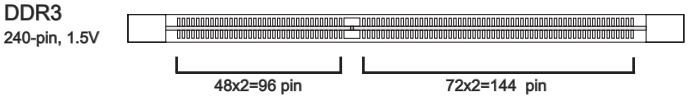
Important

- *Read the CPU status in BIOS.*
- *Whenever CPU is not installed, always protect your CPU socket pin with the plastic cap covered (shown in Figure 1) to avoid damaging.*
- *Mainboard photos shown in this section are for demonstration of the CPU/ cooler installation only. The appearance of your mainboard may vary depending on the model you purchase.*
- *Please refer to the documentation in the CPU fan package for more details about the CPU fan installation.*

Memory

These DIMM slots are used for installing memory modules. For more information on compatible components, please visit *http://www.msi.com/index.php?func=testreport*

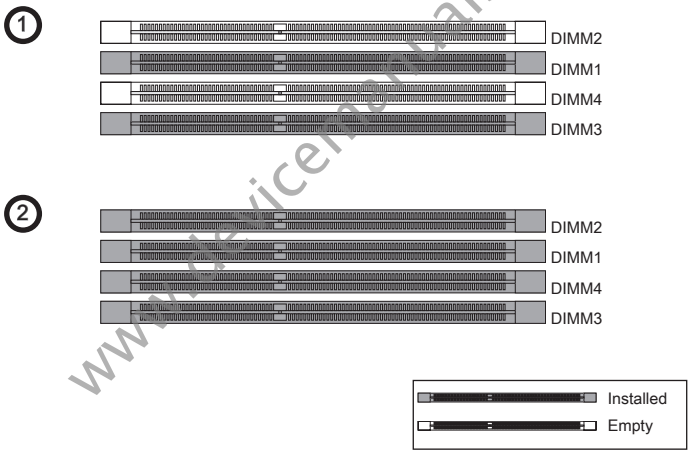


Memory Population Rule

Please refer to the following illustrations for memory population rules.

Dual-Channel mode Population Rule

In Dual-Channel mode, the memory modules can transmit and receive data with two data bus lines simultaneously. Enabling Dual-Channel mode can enhance the system performance. The following illustrations explain the population rules for Dual-Channel mode.



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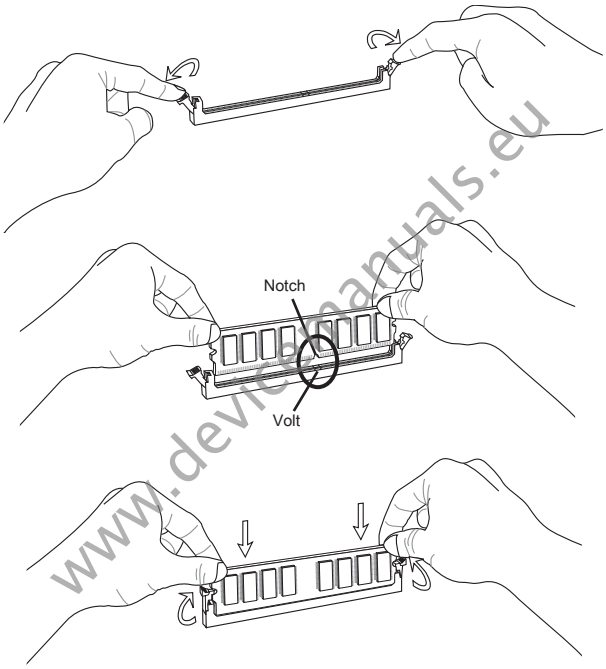
Important

- *DDR3 memory modules are not interchangeable with DDR2 and the DDR3 standard is not backwards compatible. You should always install DDR3 memory modules in the DDR3 DIMM slots.*
- *In Dual-Channel mode, make sure that you install memory modules of the* ***same type and density*** *in different channel DIMM slots.*
- *To enable successful system boot-up (Lynnfield CPU especially), always insert the memory modules into the* ***DIMM1 first****.*
- *Due to the chipset resource deployment, the system density will only be detected up to 15+GB (not full 16GB) when each DIMM is installed with a 4GB memory module.*

Installing Memory Modules

1. The memory module has only one notch on the center and will only fit in the right orientation.
2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot. The plastic clip at each side of the DIMM slot will automatically close when the memory module is properly seated.
3. Manually check if the memory module has been locked in place by the DIMM slot clips at the sides.



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Important

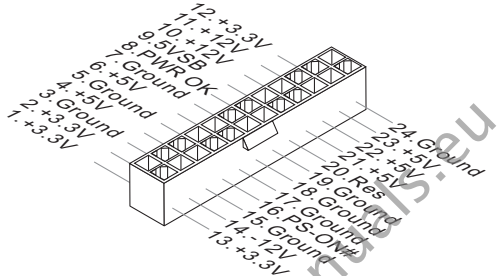
You can barely see the golden finger if the memory module is properly inserted in the DIMM slot.

Power Supply

ATX 24-pin Power Connector: JPWR1

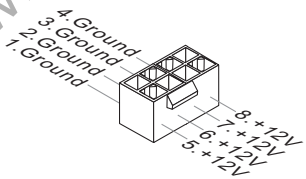
This connector allows you to connect an ATX 24-pin power supply. To connect the ATX 24-pin power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

You may use the 20-pin ATX power supply as you like. If you'd like to use the 20-pin ATX power supply, please plug your power supply along with pin 1 & pin 13.



ATX 8-pin Power Connector: JPWR2

This connector is used to provide 12V power output to the CPU.



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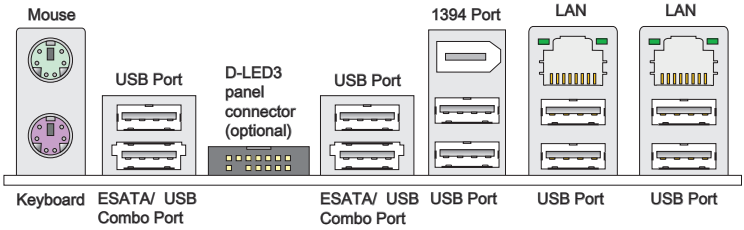
Important

Make sure that all the connectors are connected to proper ATX power supplies to ensure stable operation of the mainboard.

Back Panel



▸ **Mouse/Keyboard**

The standard PS/2® mouse/keyboard DIN connector is for a PS/2® mouse/keyboard.

▸ **USB Port**

The USB (Universal Serial Bus) port is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.

▸ **D-LED3 Panel Connector (optional)**

This connector connects to a D-LED3 (Debug-LED3) panel (optional), which shows information on the panel for you and identify the current status or mode of the connected system. Please refer to the D-LED3 quick guide (optional) for more details and usages.

▸ **ESATA/USB Combo Port**

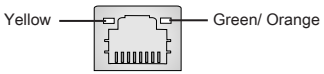
The ESATA/USB combo port is for attaching the ESATA external hard drive or USB device.

▸ **1394 Port**

The IEEE1394 port on the back panel provides connection to IEEE1394 devices.

▸ **LAN**

The standard RJ-45 LAN jack is for connection to the Local Area Network (LAN). You can connect a network cable to it.



LED	Color	LED State	Condition
Left	Yellow	Off	LAN link is not established.
		On(Steady state)	LAN link is established.
		On(brighter & pulsing)	The computer is communicating with another computer on the LAN.
Right	Green	Off	10 Mbit/sec data rate is selected.
		On	100 Mbit/sec data rate is selected.
	Orange	On	1000 Mbit/sec data rate is selected.

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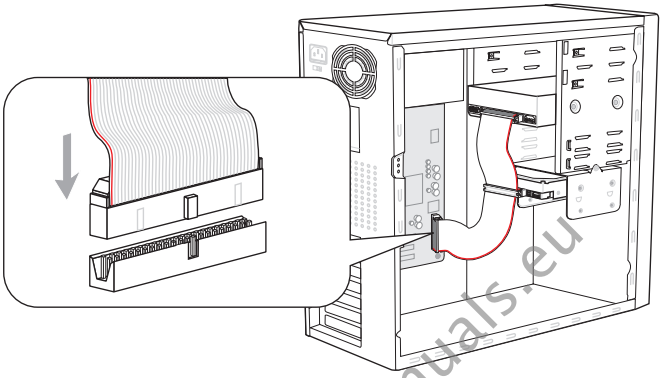
Connectors

IDE Connector: IDE1

This connector supports IDE hard disk drives, optical disk drives and other IDE devices.



* The MB layout in this figure is for reference only.

Important

If you install two IDE devices on the same cable, you must configure the drives separately to master / slave mode by setting jumpers. Refer to IDE device's documentation supplied by the vendors for jumper setting instructions.

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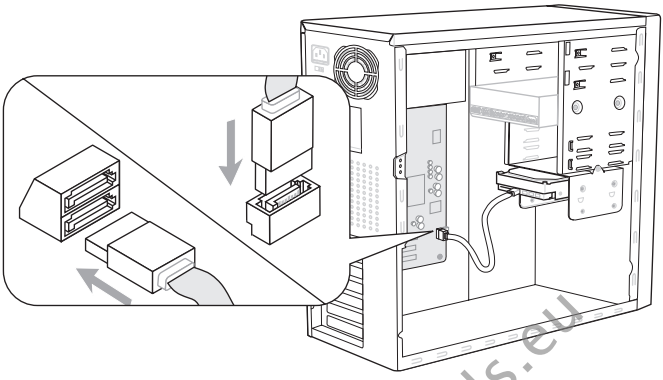
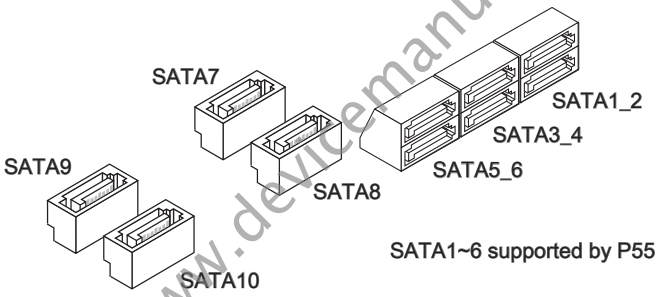
Serial ATA Connector: SATA1~10

This connector is a high-speed Serial ATA interface port. Each connector can connect to one Serial ATA device.



* The MB layout in this figure is for reference only.



SATA1~6 supported by P55 PCH

SATA7~10 supported by JMB322

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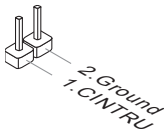
Important

Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.

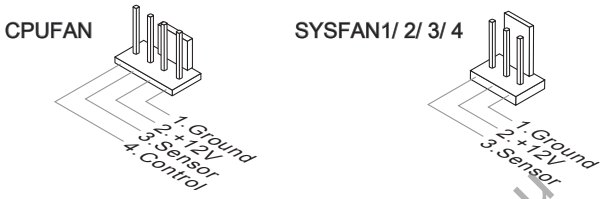
Chassis Intrusion Connector: JCI1

This connector connects to the chassis intrusion switch cable. If the chassis is opened, the chassis intrusion mechanism will be activated. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.



Fan Power Connectors: CPUFAN,SYSFAN1~4

The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always note that the red wire is the positive and should be connected to the +12V; the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



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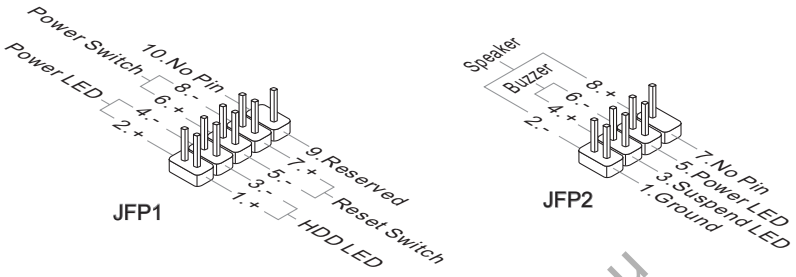
Important

- *Please refer to the recommended CPU fans at processor's official website or consult the vendors for proper CPU cooling fan.*
- *CPUFAN supports Smart fan control. You can install* **Control Center** *utility that will automatically control the CPUFAN speeds according to the actual CPUFAN temperatures.*
- *Fan cooler set with 3 or 4 pins power connector are both available for CPUFAN.*

Front Panel Connectors: JFP1, JFP2

These connectors are for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.



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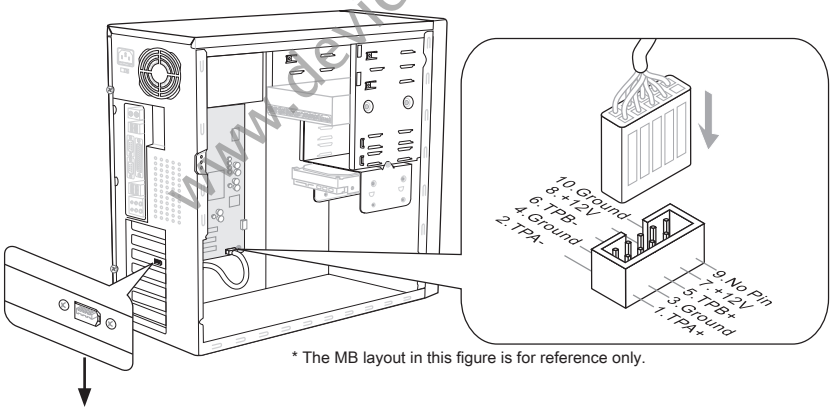
IEEE1394 Connector: J1394_1

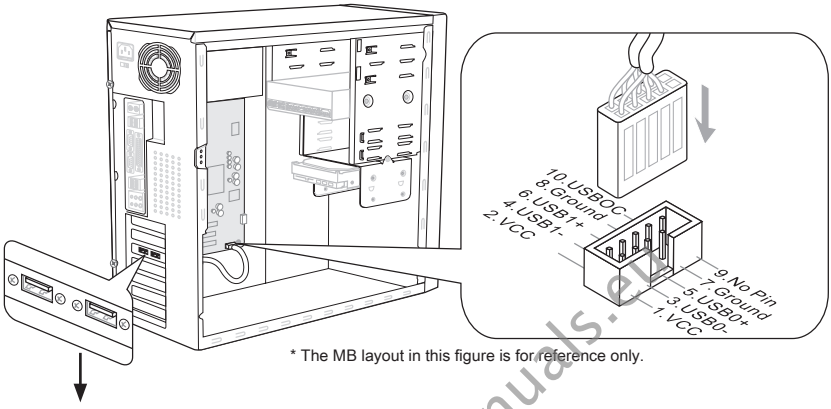
This connector allows you to connect the IEEE1394 device via an optional IEEE1394 bracket.



* The MB layout in this figure is for reference only.

Front USB Connector: JUSB1 / JUSB2

This connector, compliant with Intel® I/O Connectivity Design Guide, is ideal for connecting high-speed USB interface peripherals such as USB HDD, digital cameras, MP3 players, printers, modems and the like.



* The MB layout in this figure is for reference only.

USB 2.0 Bracket (optional)

Important

Note that the pins of VCC and GND must be connected correctly to avoid possible damage.

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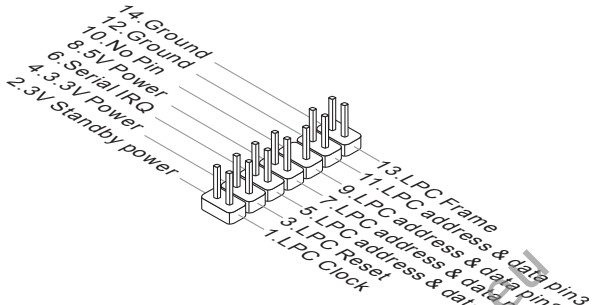
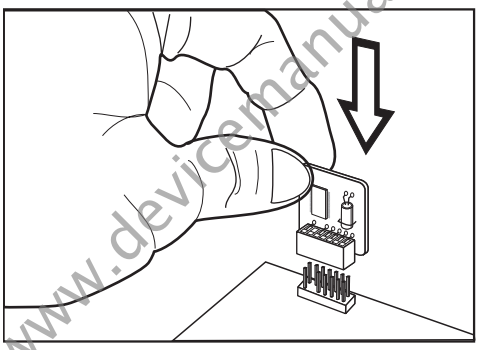
TPM Module connector: JTPM1 (optional)

This connector connects to a TPM (Trusted Platform Module) module (optional). Please refer to the TPM security platform manual for more details and usages.





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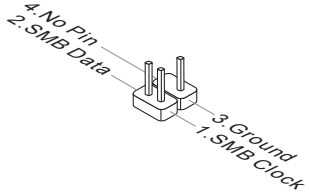
GreenPower Genie Connector: JSMB1 (optional)

This connector connects to GreenPower Genie (optional).



Button

The motherboard provides the following buttons for you to set the computer's function. This section will explain how to change your motherboard's function through the use of button.

Clear CMOS Button: CLR_CMOS1

There is a CMOS RAM on board that has a power supply from external battery to keep the system configuration data. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the button to clear data. Press the button to clear the data.

Important

- *Make sure that you power off the system before clearing CMOS data.*
- *After pressing this button to clear CMOS data in power off (G3) state, the system will boot automatically.*

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OC Genie Button: OC_Genie

This button is used to auto-overclock for the system. Press this button to enable the OC Genie function when the system is in power off state, meanwhile, the button will light and lock. And then the system will automatically detect the optimum values to overclock after booting the system. To disable the OC Genie function, please press the button again after power off the system, meanwhile, the button light will off and unlock, and the system will restore the default for next boot.

Important

- *Please install the DDR3 1333 and up memory and equip better heat sink/ cooler with OC Genie function.*
- *We do not guarantee the OC Genie overclocking range and the damages or risks caused by the OC Genie overclocking behavior.*
- *You can disable the OC Genie function in BIOS setup. And we suggest you to save the OC Genie configuration to overclocking profile in BIOS for future using.*
- *The usage of OC Genie is at your own risk. Overclocking is never guaranteed by MSI.*

Power On Button: POWER

This button is used to turn-on or turn-off the system. Press the button to turn-on or turn-off the system.

Reset Button: RESET

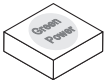
This button is used to reset the system. Press the button to reset the system.

Important

If you want to press this button to reset the system, the system will be forced shutdown about 4 seconds and restarted. This limitation derives from the P55 internal function.

Green Power Button: Green Power

This button is used to switch LED function of system. Once you press the button, the system will switch the LED between on and off mode.



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Switch

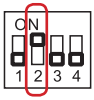
This mainboard provides the following switch for you to set the computer's function. This section will explain how to change your mainboard's function through the use of switch.

Over-Voltage Switch: V Switch

You can over-voltage the CPU/ CPU_VTT/ Memory/ PCH, and increase the maximum voltage range of CPU/ CPU_VTT/ Memory PCH for adjustment in BIOS by changing the switch.

Follow the instructions below to over-voltage and to increase the maximum voltage range of CPU / CPU_VTT/ Memory/ PCH.

Switch 1 : is used to over-voltage the CPU voltage, switching it to "ON" will over-voltage the CPU voltage for 0.1V, and increase the maximum voltage adjustment range in BIOS.



Switch 2 : is used to over-voltage the CPU_VTT voltage, switching it to "ON" will over-voltage the CPU_VTT voltage for 0.2V, and increase the maximum voltage adjustment range in BIOS.

Switch 3 : is used to over-voltage the DRAM voltage, switching it to "ON" will over-voltage the DRAM voltage for 0.2V, and increase the maximum voltage adjustment range in BIOS.

Switch 4 : is used to over-voltage the PCH voltage, switching it to "ON" will over-voltage the PCH voltage for 0.2V, and increase the maximum voltage adjustment range in BIOS.

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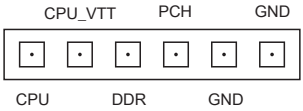
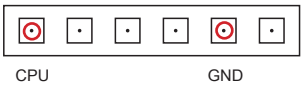
Important

- *While you enable OC Genie to detect your system configuration, please don't turn on any parts of V-switch simultaneously. That behavior would offer too much voltage for device and would be possible to cause some damage of device.*
- *After you set the CPU/ CPU_VTT/ DDR/ PCH voltage in BIOS, you can check the CPU/ CPU_VTT/ DDR/ PCH voltage by measuring the Voltage Check Point with multimeter. Please refer the following instructions to measure these voltages.*

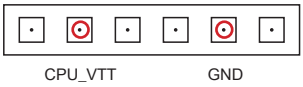
Voltage Check Point: V-Check Point

This voltage check point set is used to measure the current CPU/ CPU_VTT/ DDR/ PCH voltage.

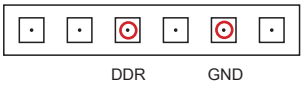




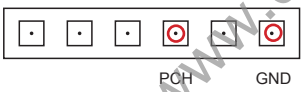
CPU voltage: measure the current CPU voltage with CPU point and GND point by using a multimeter.



CPU_VTT voltage: measure the current CPU_VTT voltage with CPU_VTT point and GND point by using a multimeter.



DDR voltage: measure the current DDR voltage with DDR point and GND point by using a multimeter.



PCH voltage: measure the current PCH voltage with PCH point and GND point by using a multimeter.

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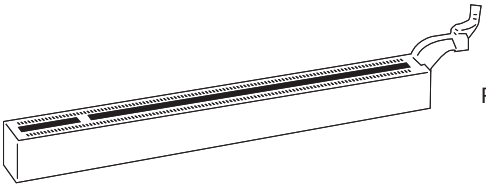
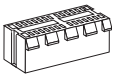
Slots

PCIE (Peripheral Component Interconnect Express) Slot

The PCI Express slot supports the PCI Express interface expansion card.



PCI Express x16 Slot



PCI Express x1 Slot

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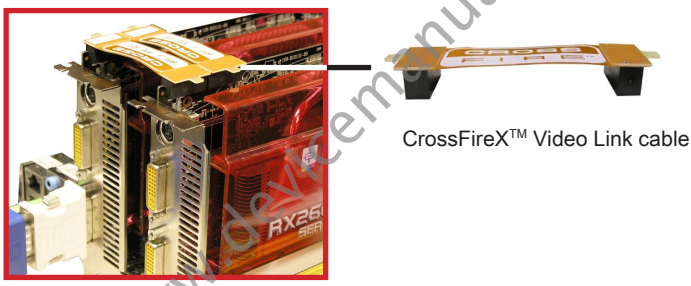
Important

- *When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.*
- *We recommend that you only install the PCIE x1 card in the PCIE x1 slots, even the PCIE x16 slots are available.*

ATI CrossFireX™ (Multi-GPU) Technology

ATI CrossFireX™ is the ultimate multi-GPU performance gaming platform. Enabling game-dominating power, ATI CrossFireX™ technology enables multiple discrete graphics processors to work together to improve system performance. ATI CrossFireX™ technology allows you to expand your system's graphics capabilities. It allows you the ability to scale your system's graphics horsepower as you need it, supporting up to three ATI Radeon™ HD graphics cards, making this the most scalable gaming platform ever. The mainboard can auto detect the CrossFireX™ mode by software, therefore you don't have to enable the CrossFireX™ in BIOS by yourself. The following details the Two CrossFireX™ installation.

1. Install one ATI Radeon™ HD graphics card in first PCIE x16 slot , then install one ATI Radeon™ HD graphics card in second PCIE x16 slot.
2. With two cards installed, an CrossFireX™ Video Link cable is required to connect the golden fingers on the top of these two graphics cards (refer to the picture below). Please note that although you have installed two graphics cards, only the video outputs on the graphics card installed in first PCIE x16 slot will work. Hence, you only need to connect a monitor to this graphics card.



CrossFireX™ Video Link cable

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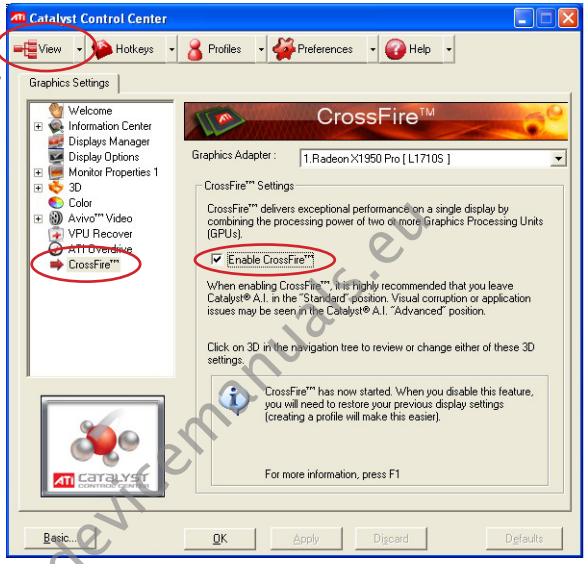
Important

- *Mainboard photos shown in this section are for demonstration only. The appearance of your mainboard may vary depending on the model you purchase.*
- *If you intend to install **TWO** graphics cards for CrossFireX™ mode, make sure that these two graphics cards are of the same brand.*
- *Make sure that you connect an adequate power supply to the power connector on the graphics card to ensure stable operation of the graphics card.*
- *Only Windows®XP with Service Pack 2 (SP2)& Windows®XP Professional x64 Edition & Windows®Vista / 7 support the CrossFireX™ function.*

3. When all of the hardware and software has been properly set up and installed, reboot the system. After entering the O.S., click the "Catalyst™ Control Center" icon on the desktop. There is a setting in the Catalyst™ Control Center that needs to be enabled for CrossFireX™ to operate. The following aspect appears in Catalyst™ Control Center:

Select the Advanced View from the view drop menu.


Catalyst Control Center
View
Hotkeys
Profiles
Preferences
Help
Graphics Settings
Welcome
Information Center
Displays Manager
Display Options
Monitor Properties 1
3D
Color
Avivo™ Video
VPU Recover
ATI Overdrive
CrossFire™
CrossFire™
Graphics Adapter :
1.Radeon X1950 Pro [L1710S]
CrossFire™ Settings
CrossFire™ delivers exceptional performance on a single display by combining the processing power of two or more Graphics Processing Units (GPUs).
Enable CrossFire™
When enabling CrossFire™, it is highly recommended that you leave Catalyst® A.I. in the "Standard" position. Visual corruption or application issues may be seen in the Catalyst® A.I. "Advanced" position.
Click on 3D in the navigation tree to review or change either of these 3D settings.
CrossFire™ has now started. When you disable this feature, you will need to restore your previous display settings (creating a profile will make this easier).
For more information, press F1
Basic...
OK
Apply
Discard
Defaults

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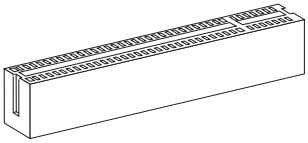
Important

- *If the Lucid driver has been installed, you have to disable it before enabling CrossFireX.*
- *A CrossFireX™ system has four possible display modes:*
  1. *SuperTiling*
  2. *Scissor Mode*
  3. *Alternate Frame Rendering*
  4. *Super Anti-aliasing.*

for more details, please consult the graphics card manual from the manufacturer.

PCI (Peripheral Component Interconnect) Slot

The PCI slot supports LAN card, SCSI card, USB card, and other add-on cards that comply with PCI specifications.



32-bit PCI Slot

Important

When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

PCI Interrupt Request Routing

The IRQ, acronym of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus pins as follows:

	Order1	Order2	Order3	Order4
PCI Slot1	INT B#	INT C#	INT D#	INT A#
PCI Slot2	INT A#	INT B#	INT C#	INT D#

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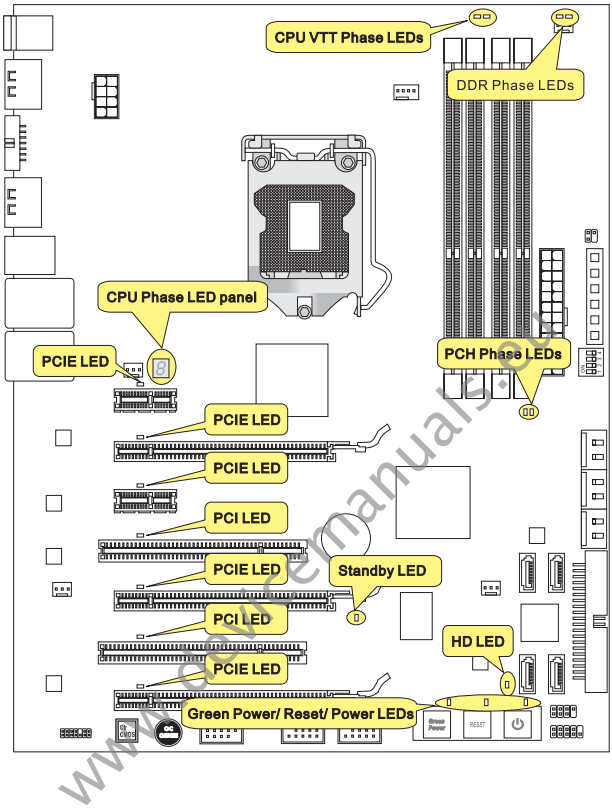
LED Status Indicators



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CPU_VTT Phase LEDs

These LEDs indicate the current CPU_VTT power phase mode. Follow the instructions below to read.

■ Lights □ Off

□ ■	CPU_VTT is in 1 phase power mode.	■ ■	CPU_VTT is in 2 phase power mode.

DDR Phase LEDs

These LEDs indicate the current DDR power phase mode. Follow the instructions below to read.

■ Lights □ Off

□ ■	DDR is in 1 phase power mode.	■ ■	DDR is in 2 phase power mode.

CPU Phase LED panel

These LEDs indicate the current CPU power phase mode. Follow the instructions below to read.

Post	Status
1	CPU is in 1 phase power mode.
2	CPU is in 2 phase power mode..
3	CPU is in 3 phase power mode.
4	CPU is in 4 phase power mode.
5	CPU is in 5 phase power mode.
6	CPU is in 6 phase power mode.
7	CPU is in 7 phase power mode.
8	CPU is in 8 phase power mode.

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PCH Phase LEDs

These LEDs indicate the current PCH power phase mode. Follow the instructions below to read.

■ Lights □ Off

□ ■	PCH is in 1 phase power mode.	■ ■	PCH is in 2 phase power mode.

Power LED

Lights blue when you press the Power button and it is functional.

Reset LED

Lights blue when you press the Reset button and it is functional.

Green Power LED

Lights blue when you press the Green Power button and it is functional.

PCIE/ PCI LEDs

Lights blue when the PCIE/ PCI Slot is functional.

Standby LED

Lights orange when the system is in standby (S4/S5) status.

HD LED

Lights red when the hard drive is operating.

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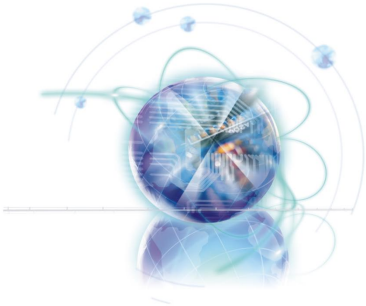

Chapter 3

BIOS Setup

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This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use.

You may need to run the Setup program when:

- An error message appears on the screen during the system booting up, and requests you to run SETUP.
- You want to change the default settings for customized features.

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <DEL> key to enter Setup.

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Important

- *The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.*
- *Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format:*

A7582IMS V1.0 090825 where:

1st digit refers to BIOS maker as A = AMI, W = AWARD, and P = PHOENIX.
2nd - 5th digit refers to the model number.
6th digit refers to the chipset as I = Intel, N = NVIDIA, A = AMD and V = VIA.
7th - 8th digit refers to the customer as MS = all standard customers.
V1.0 refers to the BIOS version.
090825 refers to the date this BIOS was released.

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Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F1>	General Help
<F4>	Enter the CPU Spec. menu, and read the CPU information
<F5>	Enter the Memory-Z menu, and read the memory information
<F6>	Load Optimized Defaults
<F8>	Load Fail-Safe Defaults
<F10>	Save all the CMOS changes and exit

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Getting Help

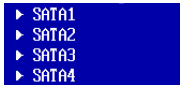
After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

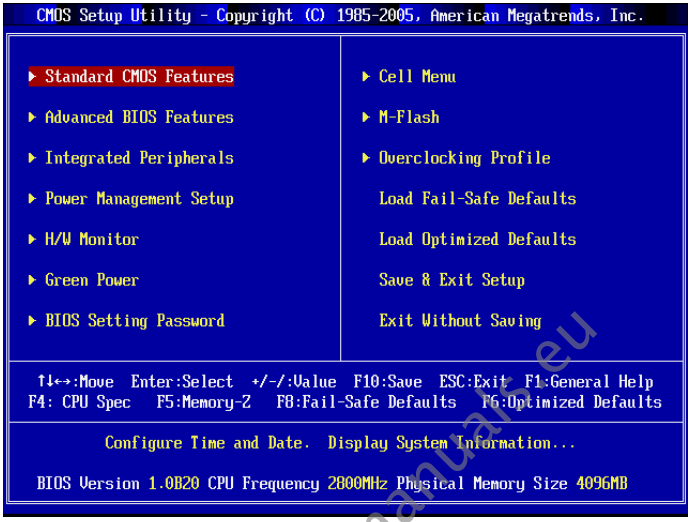
If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.



General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

The Main Menu


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Standard CMOS Features
Advanced BIOS Features
Integrated Peripherals
Power Management Setup
H/W Monitor
Green Power
BIOS Setting Password
Cell Menu
M-Flash
Overclocking Profile
Load Fail-Safe Defaults
Load Optimized Defaults
Save & Exit Setup
Exit Without Saving
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F4: CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults
Configure Time and Date. Display System Information...
BIOS Version 1.0B20 CPU Frequency 2800MHz Physical Memory Size 4096MB

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▸ **Standard CMOS Features**

Use this menu for basic system configurations, such as time, date etc.

▸ **Advanced BIOS Features**

Use this menu to setup the items of the BIOS special enhanced features.

▸ **Integrated Peripherals**

Use this menu to specify your settings for integrated peripherals.

▸ **Power Management Setup**

Use this menu to specify your settings for power management.

▸ **H/W Monitor**

This entry shows your PC health status.

▸ **Green Power**

Use this menu to specify the power phase.

▸ **BIOS Setting Password**

Use this menu to set the password for BIOS.

▸ **Cell Menu**

Use this menu to specify your settings for frequency/voltage control and overclocking.

▸ **M-Flash**

Use this menu to read/ flash the BIOS from storage drive (FAT/ FAT32 format only).

▸ **Overclocking Profile**

Use this menu to save/ load your settings to/ from CMOS for BIOS.

▸ **Load Fail-Safe Defaults**

Use this menu to load the default values set by the BIOS vendor for stable system performance.

▸ **Load Optimized Defaults**

Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

▸ **Save & Exit Setup**

Save changes to CMOS and exit setup.

▸ **Exit Without Saving**

Abandon all changes and exit setup.

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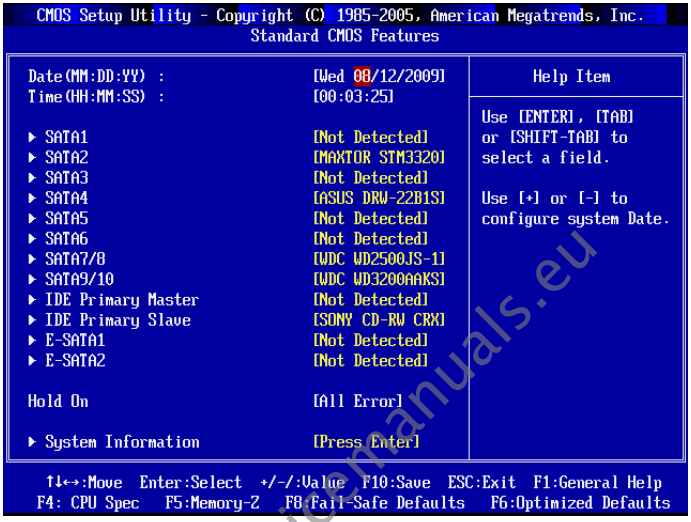
Standard CMOS Features

The items in Standard CMOS Features Menu include some basic setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Standard CMOS Features
Date(MM:DD:YY) : [Wed 08/12/2009]
Time(HH:MM:SS) : [00:03:25]
▸ SATA1 [Not Detected]
▸ SATA2 [MAXTOR STM3320]
▸ SATA3 [Not Detected]
▸ SATA4 [ASUS DRW-22B1S]
▸ SATA5 [Not Detected]
▸ SATA6 [Not Detected]
▸ SATA7/8 [WDC WD2500JS-1]
▸ SATA9/10 [WDC WD3200AAKS]
▸ IDE Primary Master [Not Detected]
▸ IDE Primary Slave [SONY CD-RW CRX]
▸ E-SATA1 [Not Detected]
▸ E-SATA2 [Not Detected]
Hold On [All Error]
▸ System Information [Press Enter]
Help Item
Use [ENTER], [TAB] or [SHIFT-TAB] to select a field.
Use [+] or [-] to configure system Date.
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F4: CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults

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▸Date (MM:DD:YY)

This allows you to set the system to the date that you want (usually the current date). The format is <day><month> <date> <year>.

[day] Day of the week, from Sun to Sat, determined by BIOS. Read-only.

[month] The month from Jan. through Dec.

[date] The date from 1 to 31 can be keyed by numeric function keys.

[year] The year can be adjusted by users.

▸Time (HH:MM:SS)

This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

▸SATA1~10 & IDE Primary Master/ Slave & E-SATA1/ 2

Press <Enter> to enter the sub-menu and the following screen appears:

▸Device / Vendor / Size (optional)/ Current Mode (for SATA7~10)/ SMART Log (for SATA7~10)

It will show the device information that you connected to the IDE/ SATA/ ESATA connector.

Important

SATA1~10 & IDE Primary Master/ Slave & E-SATA1/ 2 are appearing when you connect the HD devices to the IDE/ SATA/ E-SATA connectors on the mainboard.

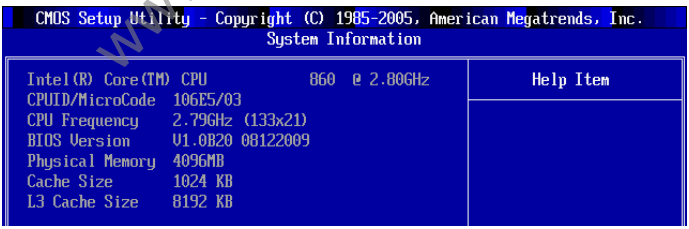
▸Hold On

The setting determines whether the system will stop of an error is detected at boot. When the system stops of the errors preset, it will halt on for 15 seconds and then automatically resume its operation. Available options are:

[All Error]	The system stops when any error is detected.
[No Error]	The system doesn't stop for any detected error.

▸System Information

Press <Enter> to enter the sub-menu, and the following screen appears.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
System Information
Intel(R) Core(TM) CPU 860 @ 2.80GHz
CPUID/MicroCode 106E5/03
CPU Frequency 2.79GHz (133x21)
BIOS Version V1.0B20 08122009
Physical Memory 4096MB
Cache Size 1024 KB
L3 Cache Size 8192 KB
Help Item

This sub-menu shows the CPU information, BIOS version and memory status of your system (read only).

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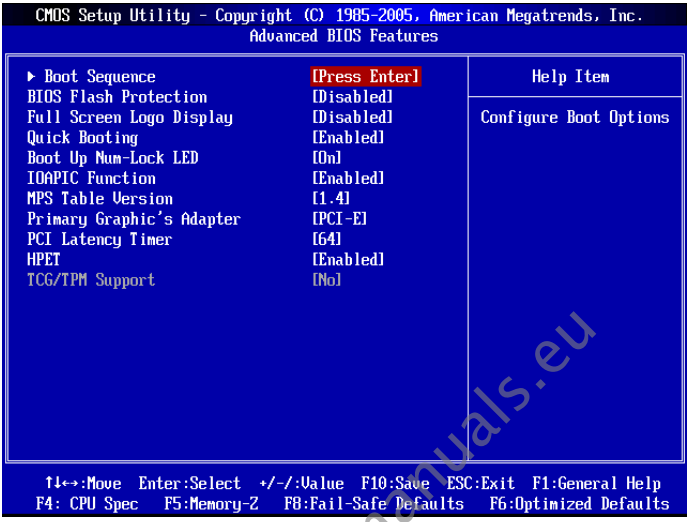
Advanced BIOS Features


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Advanced BIOS Features
▸ Boot Sequence [Press Enter]
BIOS Flash Protection [Disabled]
Full Screen Logo Display [Disabled]
Quick Booting [Enabled]
Boot Up Num-Lock LED [On]
IOAPIC Function [Enabled]
MPS Table Version [1.4]
Primary Graphic's Adapter [PCI-E]
PCI Latency Timer [64]
HPET [Enabled]
TCG/TPM Support [No]
Help Item
Configure Boot Options
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F4: CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults

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▸Boot Sequence

Press <Enter> to enter the sub-menu.

▸1st/ 2nd/ 3rd Boot Device

These items allow you to set the first/ second/ third boot device where BIOS attempts to load the disk operating system.

▸Boot From Other Device

Setting the option to [Yes] allows the system to try to boot from other device, if the system fails to boot from 1st boot device.

▸BIOS Flash Protection

This function protects the BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS' data cannot be changed when attempting to update the BIOS with a Flash utility. To successfully update the BIOS, you will need to disable this Flash BIOS Protection function. You should enable this function at all times. The only time when you need to disable it is when you want to update the BIOS. After updating the BIOS, you should immediately re-enable it to protect it against viruses.

▸Full Screen Logo Display

This item enables this system to show the company logo on the boot-up screen. Settings are:

[Enabled]	Shows a still image (logo) on the full screen at boot.
[Disabled]	Shows the POST messages at boot.

▸ **Quick Booting**

Setting the item to [Enabled] allows the system to boot within 10 seconds since it will skip some check items.

▸ **Boot Up Num-Lock LED**

This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

▸ **IOAPIC Function**

This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance with PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQ resources for the system.

▸ **MPS Table Version**

This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system.

▸ **Primary Graphic's Adapter**

This setting specifies which graphic card is your primary graphics adapter.

▸ **PCI Latency Timer**

This item controls how long each PCI device can hold the bus before another takes over. When set to higher values, every PCI device can conduct transactions for a longer time and thus improve the effective PCI bandwidth. For better PCI performance, you should set the item to higher values.

▸ **HPET**

The HPET (High Precision Event Timers) is a component that is part of the chipset. You can to enable it, and will provide you with the means to get to it via the various ACPI methods.

▸ **TCG/TPM Support**

Setting the option to [Yes] enables TPM (Trusted Platform Module) for the system.

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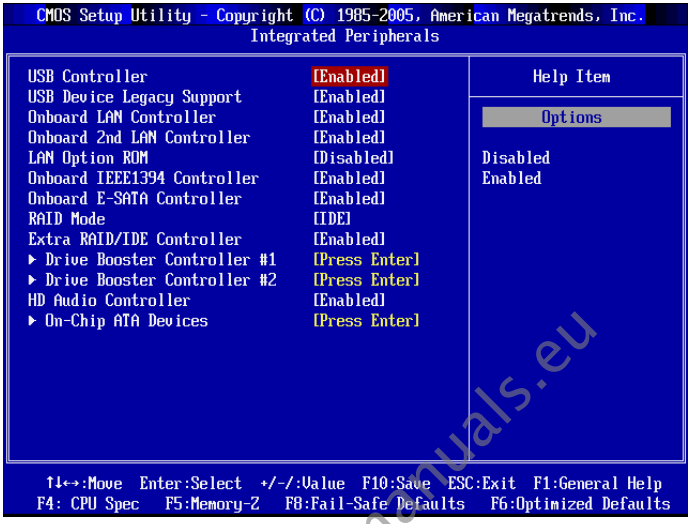
Integrated Peripherals


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Integrated Peripherals
USB Controller [Enabled]
USB Device Legacy Support [Enabled]
Onboard LAN Controller [Enabled]
Onboard 2nd LAN Controller [Enabled]
LAN Option ROM [Disabled]
Onboard IEEE1394 Controller [Enabled]
Onboard E-SATA Controller [Enabled]
RAID Mode [IDE]
Extra RAID/IDE Controller [Enabled]
▶ Drive Booster Controller #1 [Press Enter]
▶ Drive Booster Controller #2 [Press Enter]
HD Audio Controller [Enabled]
▶ On-Chip ATA Devices [Press Enter]
Help Item
Options
Disabled
Enabled
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F4: CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults

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▸USB Controller

This setting allows you to enable/disable the onboard USB controller.

▸USB Device Legacy Support

Select [Enabled] if you need to use a USB-interfaced device in the operating system.

▸Onboard LAN Controller

This setting allows you to enable/disable the onboard LAN controller.

▸Onboard 2nd LAN Controller

This setting allows you to enable/disable the onboard 2nd LAN controller.

▸LAN Option ROM

This item is used to decide whether to invoke the Boot ROM of the onboard 2nd LAN.

▸Onboard IEEE1394 Controller

This item allows you to enable/disable the onboard IEEE1394 controller.

▸Onboard E-SATA Controller

This item allows you to enable/disable the onboard E-SATA controller.

▸RAID Mode (for E-SATA)

This item is used to select mode for on-chip SATA connectors.

▸Extra RAID/ IDE Controller (for SATA7/ 8/ 9/ 10)

This item allows you to enable/disable the onboard extra RAID/ IDE controller.

▸Drive Booster Controller #1 (for SATA7 & 8)/ #2(for SATA9 & 10)

Press <Enter> to enter the sub-menu, and the following screen appears.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Drive Booster Controller #1
Controller #1
Current Mode : Normal Mode
Drive Booster Mode Update:
Update To RAID0 (Stripe) [Press Enter]
Update To RAID1 (Mirror) [Press Enter]
Update To JBOD (Large) [Press Enter]
Update To Normal Hdd [Press Enter]
Help Item
Update Drive Booster changes after saving changes and exiting BIOS setup.
Discard Drive Booster

▸Controller #1 >> Current Mode :

It shows the current mode of SATA device.

▸Drive Booster Mode Update:

Update To RAID0 (Stripe)/ RAID1(Mirror)/ JBOD(Large)/ Normal Hdd

These items are used to enable the RAID0/ RAID1/ JBOD/ Normal (non-RAID) mode for the SATA devices.

▸HD Audio Controller

This setting is used to enable/disable the onboard audio controller.

▸On-Chip ATA Devices

Press <Enter> to enter the sub-menu and the following screen appears:

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
On-Chip ATA Devices
PCI IDE BusMaster [Enabled]
On-Chip SATA Controller [Enabled]
RAID Mode [IDE]
Help Item
ENABLED: BIOS uses

▸PCI IDE BusMaster

This item allows you to enable/ disable BIOS to used PCI busmastering for reading/ writing to IDE drives.

▸On-Chip SATA Controller

This item allows users to enable or disable the on-chip SATA controller.

▸RAID Mode

This item is used to select mode for on-chip SATA connectors.

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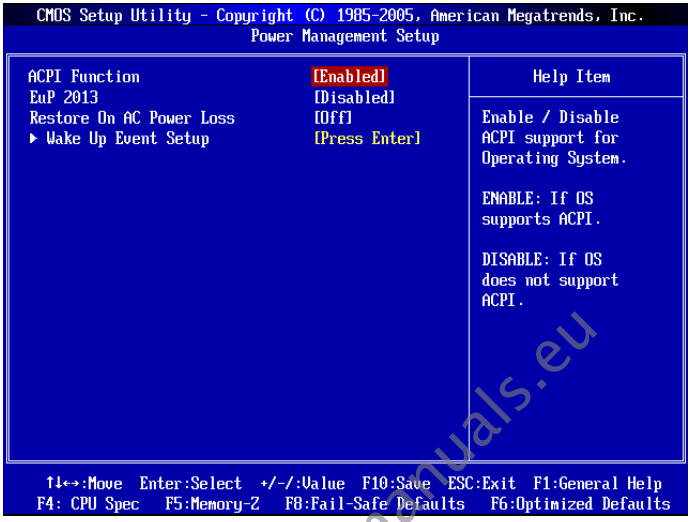
Power Management Setup


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Power Management Setup
ACPI Function [Enabled]
EuP 2013 [Disabled]
Restore On AC Power Loss [Off]
▸ Wake Up Event Setup [Press Enter]
Help Item
Enable / Disable ACPI support for Operating System.
ENABLE: If OS supports ACPI.
DISABLE: If OS does not support ACPI.
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F4: CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults

▸ACPI Function

This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 98SE/ 2000/ ME/ XP, select [Enabled].

▸EuP 2013

This item is used to reduce the power consumption in ACPI S5 state.

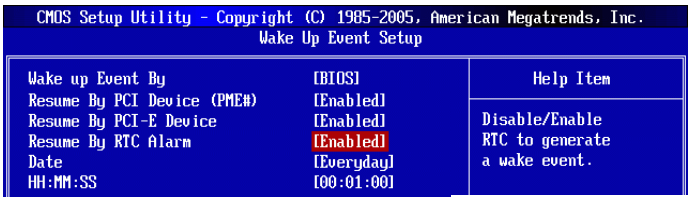
▸Restore On AC Power Loss

This item specifies whether your system will reboot after a power failure or interrupt occurs. Settings are:

[Off]	Always leaves the computer in the power off state.
[On]	Always leaves the computer in the power on state.
[Last State]	Restore the system to the status before power failure or interrupt occurred.

▸Wake Up Event Setup

Press <Enter> and the following sub-menu appears.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Wake Up Event Setup
Wake up Event By [BIOS]
Resume By PCI Device (PME#) [Enabled]
Resume By PCI-E Device [Enabled]
Resume By RTC Alarm [Enabled]
Date [Everyday]
HH:MM:SS [00:01:00]
Help Item
Disable/Enable RTC to generate a wake event.

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▸ **Wake up Event By**

Setting to [BIOS] activates the following fields, and use the following fields to set the wake up events. Setting to [OS], the wake up events will be defined by OS.

▸ **Resume By PCI Device (PME#)**

When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event on PME (Power Management Event).

▸ **Resume By PCI-E Device**

When set to [Enabled], the feature allows your system to be awakened from the power saving modes through any event on PCIE device.

▸ **Resume By RTC Alarm**

The field is used to enable or disable the feature of booting up the system on a scheduled time/date.

▸ **Date/ HH:MM:SS**

If Resume By RTC Alarm is set to [Enabled], the system will automatically resume (boot up) on a specific date/hour/minute/second specified in these fields (using the <+> and <-> to select the date & time settings). Available settings for each item are:

[Date]	01 ~ 31, Every Day
[HH:MM:SS]	00 ~ 23 : 00 ~ 59 : 00 ~ 59

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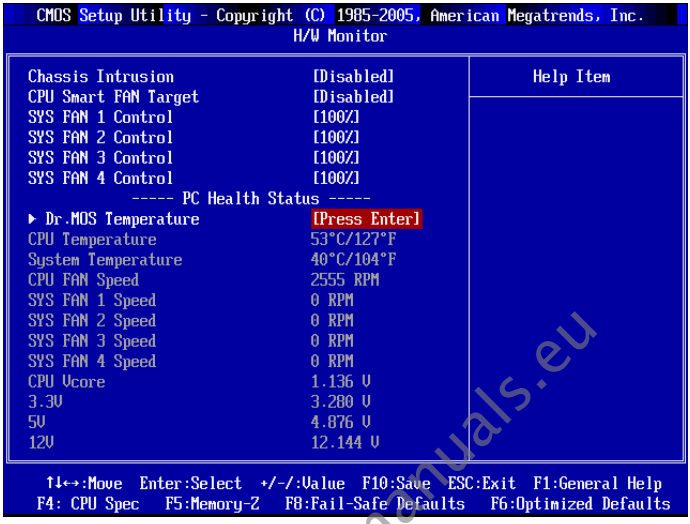
H/W Monitor


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
H/W Monitor
Chassis Intrusion [Disabled]
CPU Smart FAN Target [Disabled]
SYS FAN 1 Control [100%]
SYS FAN 2 Control [100%]
SYS FAN 3 Control [100%]
SYS FAN 4 Control [100%]
----- PC Health Status -----
Dr.MOS Temperature [Press Enter]
CPU Temperature 53°C/127°F
System Temperature 40°C/104°F
CPU FAN Speed 2555 RPM
SYS FAN 1 Speed 0 RPM
SYS FAN 2 Speed 0 RPM
SYS FAN 3 Speed 0 RPM
SYS FAN 4 Speed 0 RPM
CPU Vcore 1.136 V
3.3V 3.280 V
5V 4.876 V
12V 12.144 V
Help Item
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F4: CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults

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▸Chassis Intrusion

The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to [Reset]. The setting of the field will automatically return to [Enabled] later.

▸CPU Smart FAN Target

The mainboard provides the Smart Fan function which can control the CPU fan speed automatically depending on the current temperature to keep it with in a specific range. You can enable a fan target value here. If the current CPU fan temperature reaches to the target value, the smart fan function will be activated. It provides several sections to speed up for cooling down automatically.

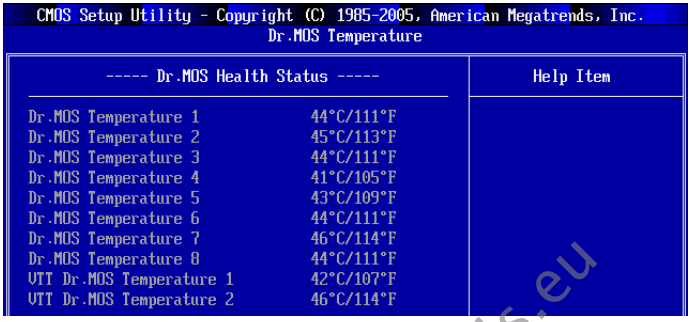
▸SYS FAN 1/ 2/ 3/ 4 Control

These items allow users to select how percentage of speed for the SYSFAN1/ 2/ 3/ 4.

----- PC Health Status -----

▸Dr.MOS Temperature

Press <Enter> and the following sub-menu appears. The sub-menu shows every MOS-FET surface temperature. (Read only).


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Dr.MOS Temperature
----- Dr.MOS Health Status -----
Help Item
Dr.MOS Temperature 1 44°C/111°F
Dr.MOS Temperature 2 45°C/113°F
Dr.MOS Temperature 3 44°C/111°F
Dr.MOS Temperature 4 41°C/105°F
Dr.MOS Temperature 5 43°C/109°F
Dr.MOS Temperature 6 44°C/111°F
Dr.MOS Temperature 7 46°C/114°F
Dr.MOS Temperature 8 44°C/111°F
VTT Dr.MOS Temperature 1 42°C/107°F
VTT Dr.MOS Temperature 2 46°C/114°F

▸CPU/ System Temperature, CPU FAN/ SYS FAN 1/ 2/ 3/ 4 Speed, CPU Vcore, 3.3V, 5V, 12V

These items display the current status of all of the monitored hardware devices/components such as CPU voltage, temperatures and all fans' speeds.

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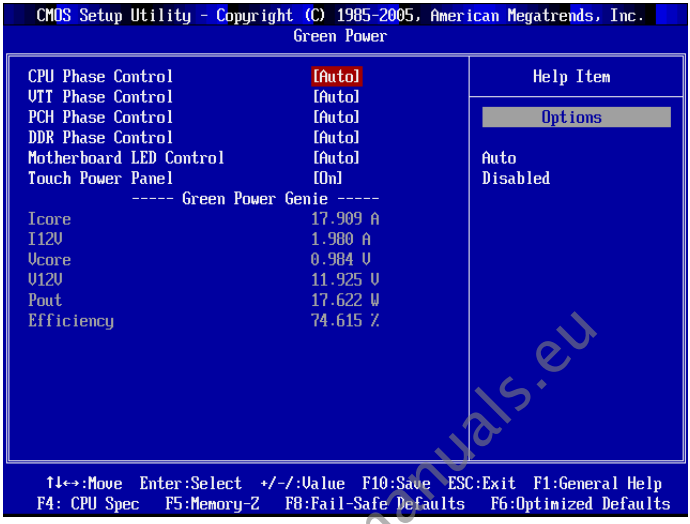
Green Power



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▸CPU/ VTT/ PCH/ DDR Phase Control

When set to [Auto], the hardware will auto adjust the CPU/ VTT/ PCH/ DDR power phase according to the loading of CPU/ VTT/ PCH/ DDR to reach the best power saving function.

▸Motherboard LED Control

This item is used to enable/ disable the power phase LEDs of the mainboard.

▸Touch Power Panel

This item is used to turn on/ turn off the touch power panel (Green Power/ RESET/ POWER buttons) on the mainboard.

----- GreenPower Genie-----

▸Icore/ I12V/ Vcore/ V12V

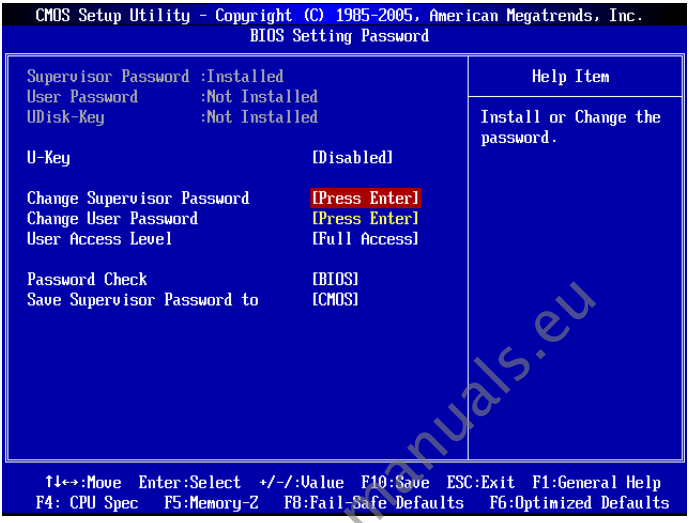
These items show the amperage of Core/ 12V. Read only.

▸Pout/ Efficiency

These items show the power consumption & efficiency of the system. Read only.

BIOS Setting Password

When you select this function, a message as below will appear on the screen:


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
BIOS Setting Password
Supervisor Password :Installed
User Password :Not Installed
UDisk-Key :Not Installed
U-Key [Disabled]
Change Supervisor Password [Press Enter]
Change User Password [Press Enter]
User Access Level [Full Access]
Password Check [BIOS]
Save Supervisor Password to [CMOS]
Help Item
Install or Change the password.
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F4: CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults

▸U-Key

This item is used to enable/ disable USB driver device as a key.

▸Make U-Key at

This item is used to specify the USB driver device as a key.

▸Change Supervisor Password

This item is used to set the supervisor password.

▸Change User Password

This item is used to set the user password.

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Important

Type the password, up to eight characters in length, and press <Enter>. The password typed now will replace any previously set password. You will be prompted to confirm the password. Retype the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, you will be prompted to enter it every time you try to enter Setup/ System. This prevents an unauthorized person from changing any part of your system configuration.

About Supervisor Password & User Password:

***Supervisor password**: Can enter and change the settings of the setup menu.*

***User password**: Can only enter but do not have the right to change the settings of the setup menu.*

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▸ **User Access Level**

This item is used to limit the user access level.

▸ **Passwrod Check**

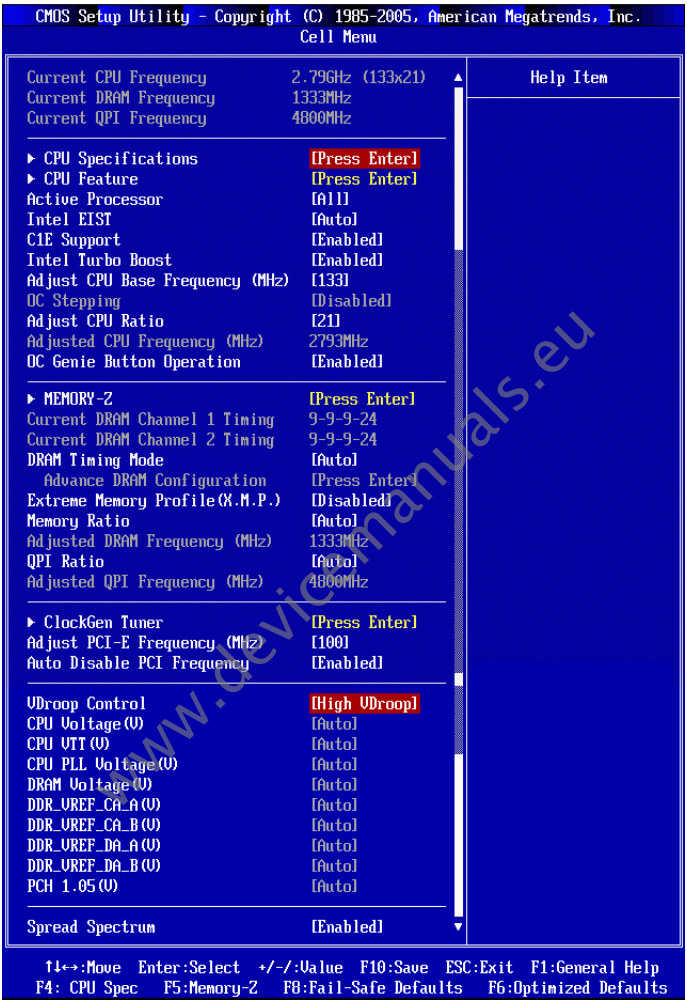
This specifies the type of BIOS password protection that is implemented. Settings are described below:

Option	Description
[BIOS]	The password prompt appears only when end users try to run Setup.
[System]	A password prompt appears every time when the computer is powered on or when end users try to run Setup.

▸ **Save Supervisor Password to**

This item is used to assign a place to save the supervisor password.

Cell Menu


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Cell Menu
Current CPU Frequency 2.79GHz (133x21)
Current DRAM Frequency 1333MHz
Current QPI Frequency 4800MHz
▸ CPU Specifications [Press Enter]
▸ CPU Feature [Press Enter]
Active Processor [All]
Intel EIST [Auto]
C1E Support [Enabled]
Intel Turbo Boost [Enabled]
Adjust CPU Base Frequency (MHz) [133]
OC Stepping [Disabled]
Adjust CPU Ratio [21]
Adjusted CPU Frequency (MHz) 2793MHz
OC Genie Button Operation [Enabled]
▸ MEMORY-Z [Press Enter]
Current DRAM Channel 1 Timing 9-9-9-24
Current DRAM Channel 2 Timing 9-9-9-24
DRAM Timing Mode [Auto]
Advance DRAM Configuration [Press Enter]
Extreme Memory Profile(X.M.P.) [Disabled]
Memory Ratio [Auto]
Adjusted DRAM Frequency (MHz) 1333MHz
QPI Ratio [Auto]
Adjusted QPI Frequency (MHz) 4800MHz
▸ ClockGen Tuner [Press Enter]
Adjust PCI-E Frequency (MHz) [100]
Auto Disable PCI Frequency [Enabled]
VDroop Control [High VDroop]
CPU Voltage(V) [Auto]
CPU VTT(V) [Auto]
CPU PLL Voltage(V) [Auto]
DRAM Voltage(V) [Auto]
DDR_VREF_CA_A(V) [Auto]
DDR_VREF_CA_B(V) [Auto]
DDR_VREF_DA_A(V) [Auto]
DDR_VREF_DA_B(V) [Auto]
PCH 1.05(V) [Auto]
Spread Spectrum [Enabled]
Help Item
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F4: CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults

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Important

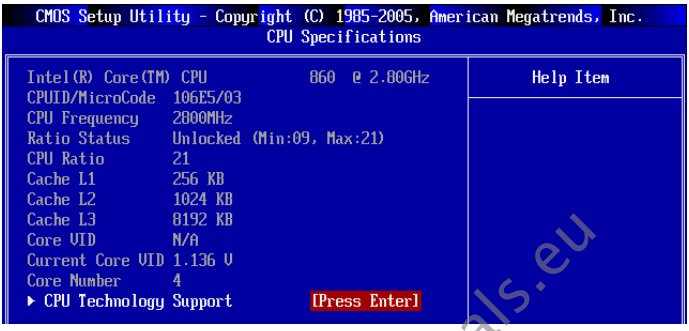
Change these settings only if you are familiar with the chipset.

▸Current CPU / DRAM / QPI Frequency

These items show the current frequencies of CPU, Memory and QPI. Read-only.

▸CPU Specifications

Press <Enter> to enter the sub-menu and the following screen appears. This submenu shows the information of installed CPU.

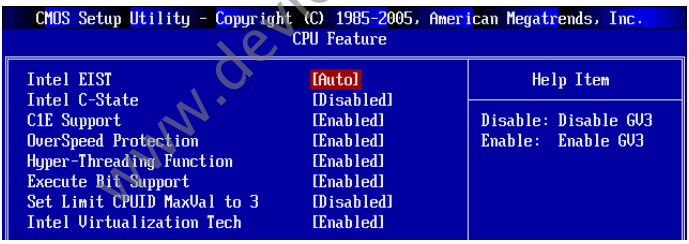

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
CPU Specifications
Intel(R) Core(TM) CPU 860 @ 2.80GHz
CPUID/MicroCode 106E5/03
CPU Frequency 2800MHz
Ratio Status Unlocked (Min:09, Max:21)
CPU Ratio 21
Cache L1 256 KB
Cache L2 1024 KB
Cache L3 8192 KB
Core VID N/A
Current Core VID 1.136 V
Core Number 4
▸ CPU Technology Support [Press Enter]
Help Item

▸CPU Technology Support

Press <Enter> to enter the sub-menu. In this sub-menu, it shows the installed CPU technologies. Read only.

▸CPU Feature

Press <Enter> to enter the sub-menu and the following screen appears:



▸Intel EIST

The Enhanced Intel SpeedStep technology allows you to set the performance level of the microprocessor whether the computer is running on battery or AC power. This field will appear after you installed the CPU which supports speedstep technology.

▸Intel C-STATE

C-state is a power management state that significantly reduces the power of the processor during idle. This field will appear after you installed the CPU which supports c-state technology.

▸C1E Support

To enable this item to read the CPU power consumption while idle. Not all processors support Enhanced Halt state (C1E).

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▸ OverSpeed Protection

Overspeed Protection function can monitor the current CPU draws as well as its power consumption. If it exceeds a certain level, the processor automatically reduces its clock speed. If you want to overclock your CPU, set it to [Disabled].

▸ Hyper-Threading Function

The processor uses Hyper-Threading technology to increase transaction rates and reduces end-user response times. The technology treats the two cores inside the processor as two logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. If you disable the function, the processor will use only one core to execute the instructions. Please disable this item if your operating system doesn't support HT Function, or unreliability and instability may occur.

Important

Enabling the functionality of Hyper-Threading Technology for your computer system requires ALL of the following platform Components:

- *CPU: An Intel® Processor with HT Technology;*
- *Chipset: An Intel® Chipset that supports HT Technology;*
- *BIOS: A BIOS that supports HT Technology and has it enabled;*
- *OS: An operating system that supports HT Technology.*

For more information on Hyper-threading Technology, go to:

http://www.intel.com/products/ht/hyperthreading_more.htm

▸ Execute Bit Support

Intel's Execute Disable Bit functionality can prevent certain classes of malicious "buffer overflow" attacks when combined with a supporting operating system. This functionality allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation.

▸ Set Limit CPUID MaxVal to 3

The Max CPUID Value Limit is designed limit the listed speed of the processor to older operating systems.

▸ Intel Virtualization Tech

This item is used to enable/disable the Intel Virtualization technology. For further information please refer to Intel's official website.

▸ Active Processor

This item allows you to select the number of active processor cores.

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▸Intel EIST

The Enhanced Intel SpeedStep technology allows you to set the performance level of the microprocessor whether the computer is running on battery or AC power. This field will appear after you installed the CPU which supports speedstep technology.

▸C1E Support

To enable this item to read the CPU power consumption while idle. Not all processors support Enhanced Halt state (C1E).

▸Intel Turbo Boost

This item will appear when you install a CPU with Intel Turbo Boost technology. This item is used to enable/ disable Intel Turbo Boost technology. It can scale processor frequency higher dynamically when applications demand more performance and TDP headroom exists. It also can deliver seamless power scalability (Dynamically scale up, Speed-Step Down). It is the Intel newly technology within i5/ i7 CPU.

▸Adjust CPU Base Frequency (MHz)

This item allows you to set the CPU Base clock (in MHz). You may overclock the CPU by adjusting this value. Please note the overclocking behavior is not guaranteed.

▸OC Stepping

This item will be enabled after you set the overclocking frequency in the “Adjust CPU Base Frequency (MHz)”. And the following items will appear. This items will help the system to overclock step by step after system booting up.

▸Start OC Stepping From (MHz)

This item is used to set the initial base clock. The system will boot with the initial base clock, and start to overclock from initial base clock to set base clock that you set in “Adjust CPU Base Frequency (MHz)” step by step.

▸OC Step

This item is used to set how many steps for base colck overclocking.

▸OC Step Count Timer

This item is used to set the buffer time for every step.

▸Adjust CPU Ratio

This item allows you to adjust the CPU ratio. This field will appear after you installed the CPU which supports adjusting CPU ratio.

▸Adjusted CPU Frequency (MHz)

It shows the adjusted CPU frequency (Base clock x Ratio). Read-only.

▸OC Genie Button Operation

This item is used to enable/ disable the OC Genie button function. When disable it, OC Genie function become unavailable.

▸Memory-Z

Press <Enter> to enter the sub-menu and the following screen appears.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
MEMORY-Z
▸ DIMM1 Memory SPD Information [Press Enter]
▸ DIMM3 Memory SPD Information [Press Enter]
Help Item

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▸ DIMM1~4 Memory SPD Information

Press <Enter> to enter the sub-menu. The sub-menu displays the informations of installed memory.

▸ Current DRAM Channel1~4 Timing

It shows the installed DRAM Timing. Read-only.

▸ DRAM Timing Mode

Select whether DRAM timing is controlled by the SPD (Serial Presence Detect) EEPROM on the DRAM module. Setting to [Auto] enables DRAM timings and the following "Advance DRAM Configuration" sub-menu to be determined by BIOS based on the configurations on the SPD. Selecting [Manual] allows users to configure the DRAM timings and the following related "Advance DRAM Configuration" sub-menu manually.

▸ Advance DRAM Configuration

When the DRAM Timing Mode is set to [Manual], this sub-menu will available. Press <Enter> to enter the sub-menu.

▸ CH1/ CH2 1T/2T Memory Timing

This item controls the SDRAM command rate. Select [1N] makes SDRAM signal controller to run at 1N (N=clock cycles) rate. Selecting [2N] makes SDRAM signal controller run at 2N rate.

▸ CH1/ CH2 CAS Latency (CL)

This controls the CAS latency, which determines the timing delay (in clock cycles) before SDRAM starts a read command after receiving it.

▸ CH1/ CH2 tRCD

When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe). The less the clock cycles, the faster the DRAM performance.

▸ CH1/ CH2 tRP

This setting controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refresh may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system.

▸ CH1/ CH2 tRAS

This setting determines the time RAS takes to read from and write to memory cell.

▸ CH1/ CH2 tRFC

This setting determines the time RFC takes to read from and write to a memory cell.

▸ CH1/ CH2 tWR

Minimum time interval between end of write data burst and the start of a precharge command. Allows sense amplifiers to restore data to cells.

▸ CH1/ CH2 tWTR

Minimum time interval between the end of write data burst and the start of a column-read command. It allows I/O gating to overdrive sense amplifiers before read

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command starts.

▸CH1/ CH2 tRRD

Specifies the active-to-active delay of different banks.

▸CH1/ CH2 tRTP

Time interval between a read and a precharge command.

▸CH1/ CH2 tFAW

This item is used to set the tFAW timing.

▸Current CH1/ CH2 tdrRdTRd/ tddRdTRd/ tsrRdTWr/ tdrRdTWr/ tddRdTWr/ tsrWrTRd/ tddWrTWr/ tsrRDTRd/ tsrWrTWr

These item show the advanced DRAM timings.

▸Channel 1/ Channel2 Advanced Memory Setting

Setting to [Auto] enables the advance memory timing automatically to be determined by BIOS. Setting to [Manual] allows you to set the following advanced memory timings.

▸Extreme Memory Profile (X.M.P.)

This item is used to enable/disable the Intel Extreme Memory Profile (XMP). For further information please refer to Intel's official website.

▸Memory Ratio

This item allows you to set the memory multiplier.

▸Adjusted DRAM Frequency (MHz)

It shows the adjusted DRAM frequency. Read-only.

▸QPI Ratio

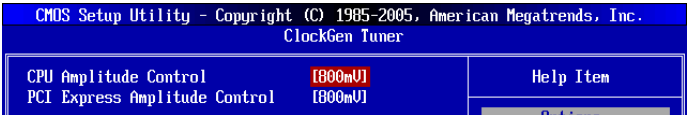
This item allows you to set the QPI multiplier.

▸Adjusted QPI Frequency (MHz)

It shows the adjusted QPI frequency. Read-only.

▸ClockGen Tuner

Press <Enter> to enter the sub-menu and the following screen appears.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
ClockGen Tuner
CPU Amplitude Control [800mV]
PCI Express Amplitude Control [800mV]
Help Item

▸CPU Amplitude Control/ PCI Express Amplitude Control

These items are used to select the CPU/ PCI Express clock amplitude.

▸Adjust PCI-E Frequency (MHz)

This field allows you to select the PCIE frequency (in MHz).

▸Auto Disable PCI Frequency

When set to [Enabled], the system will remove (turn off) clocks from empty PCI slots to minimize the electromagnetic interference (EMI).

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▸VDroop Control

This is used to prevent a large number voltage droping when system in high loading status.

▸CPU Voltage(V)/ CPU VTT (V)/ CPU PLL Voltage(V)/ DRAM Voltage (V)/ DDR_VREF_CA_A (V)/ / DDR_VREF_CA_B (V)/ DDR_VREF_DA_A (V)/ DDR_VREF_DA_B (V)/ PCH 1.05V (V)

These items are used to adjust the voltage of CPU, Memory and chipset.

▸Spread Spectrum

When the mainboard's clock generator pulses, the extreme values (spikes) of the pulses create EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves.

Important

- *If you do not have any EMI problem, leave the setting at [Disabled] for optimal system stability and performance. But if you are plagued by EMI, select the value of Spread Spectrum for EMI reduction.*
- *The greater the Spread Spectrum value is, the greater the EMI is reduced, and the system will become less stable. For the most suitable Spread Spectrum value, please consult your local EMI regulation.*
- *Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your over-clocked processor to lock up.*

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Important

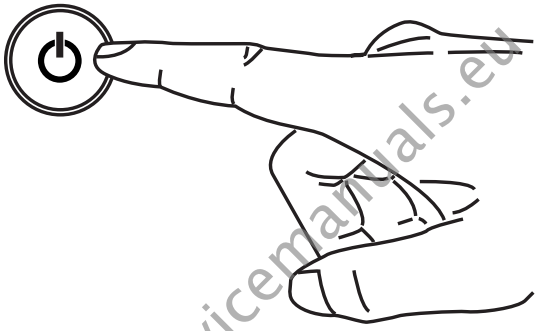
Failed Overclocking Resolution

This mainboard supports overclocking greatly. However, please make sure your peripherals and components are bearable for some special settings. Any operation that exceeds product specification is not recommended. Any risk or damge resulting from improper operation will not be under our product warranty.

Two ways to save your system from failed overclocking...

- *Reboot*

  Press the Power button to reboot the system three times. Please note that, to avoid electric current to affect other devices or components, we suggest an interval of more than 10 seconds among the reboot actions.



At the fourth reboot, BIOS will determine that the previous overclocking is failed and restore the default settings automatically. Please press any key to boot the system normally when the following message appears on screen.

```
Warning !!! The previous overclocking had failed,
and system will restore its defaults setting,
Press any key to continue.....
```

- *Clear CMOS*

  Please refer to "Chapter 2" for more information about how to clear CMOS data.

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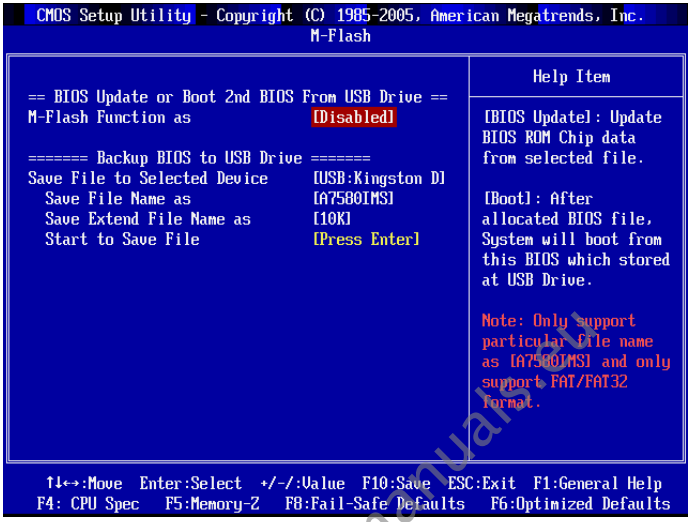
M-Flash


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
M-Flash
== BIOS Update or Boot 2nd BIOS From USB Drive ==
M-Flash Function as [Disabled]
======= Backup BIOS to USB Drive =======
Save File to Selected Device [USB:Kingston DJ]
Save File Name as [A7580IMS]
Save Extend File Name as [10K]
Start to Save File [Press Enter]
Help Item
[BIOS Update]: Update BIOS ROM Chip data from selected file.
[Boot]: After allocated BIOS file, System will boot from this BIOS which stored at USB Drive.
Note: Only support particular file name as [A7580IMS] and only support FAT/FAT32 format.
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F4: CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults

== BIOS Update or Boot 2nd BIOS From USB drive==

▸M-Flash function as

M-Flash function allows you to flash BIOS from USB drive/ storage drive (FAT/ FAT32 format only), or allows the system to boot from the BIOS file inside USB drive (FAT/ FAT32 format only).

[Disabled] Disable M-Flash function.

[BIOS Update] Flash BIOS via the USB/ Storage drive directly. Update BIOS ROM chip data from selected file, which was be download from official website and must be saved in the root directory of the USB/ Storage drive. It only supports particular file name, which is the official BIOS file name from us.

[Boot] After allocated particular BIOS file, system will boot from this BIOS file which saved in the root directory of USB drive. System will skip MB ROM chip data and boot with this particular BIOS inside USB drive. Note: this option is for USB drive only.

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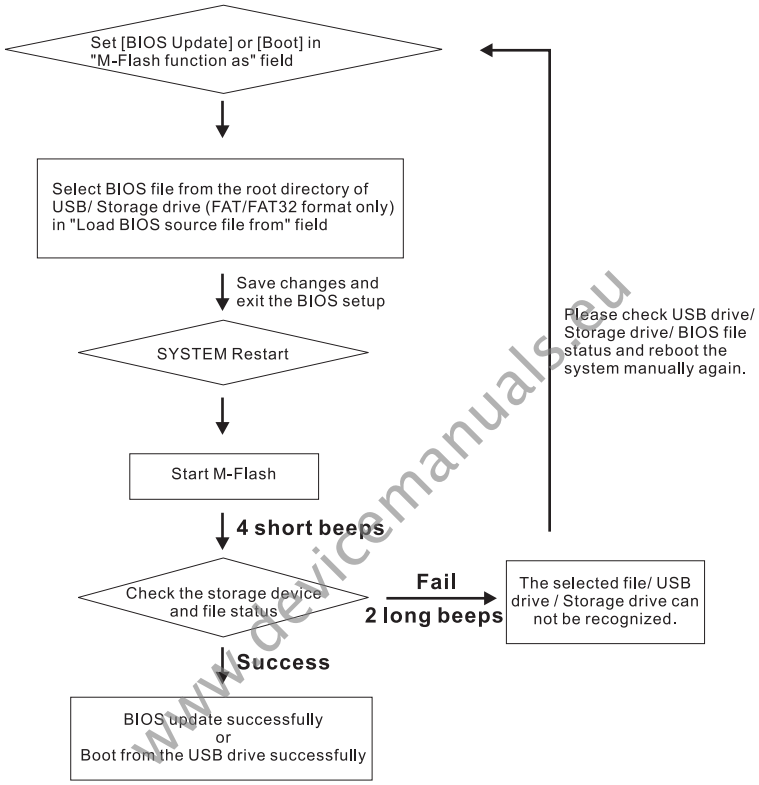
Important

- *Please refer to the block diagram below about the M-Flash function.*


Set [BIOS Update] or [Boot] in "M-Flash function as" field
Select BIOS file from the root directory of USB/ Storage drive (FAT/FAT32 format only) in "Load BIOS source file from" field
Save changes and exit the BIOS setup
SYSTEM Restart
Start M-Flash
4 short beeps
Check the storage device and file status
Fail
2 long beeps
The selected file/ USB drive / Storage drive can not be recognized.
Please check USB drive/ Storage drive/ BIOS file status and reboot the system manually again.
Success
BIOS update successfully or Boot from the USB drive successfully

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- *Due to the special design of some graphics cards will cause dark screen during M-flash operation, and you may refer the beeps from the system to confirm the current M-flash process.*

▸ **Load BIOS source file from**

When the M-Flash function as sets to [Boot] or [BIOS Update], this item is selectable. Use this item to select particular BIOS file from the USB/ Storage (FAT/32 format only) drive.

== Backup BIOS to USB drive ==

The following fields are used to read the onboard BIOS ROM data, and save it to USB drive/ storage drive.

▸ **Save File to Selected Device**

Please setup a specific folder in specific USB drive/ storage drive to save BIOS file from BIOS ROM chip data. Note: it only supports FAT/ FAT32 file system drive.

▸ **Save File Name as**

Please setup a specific name for the BIOS file, which will be saved into the USB drive/ storage drive. Note: we suggest you using the official name as the default name.

▸ **Save Extend File name as**

Please setup a specific extend name for the BIOS file, which will be saved into the USB drive/ storage drive. Note: we suggest you using [ROM] as default name.

▸ **Start to save file**

Press “Enter” and select “OK” the system will stare to save the onboard ROM chip data to the selected USB drive/ storage drive.

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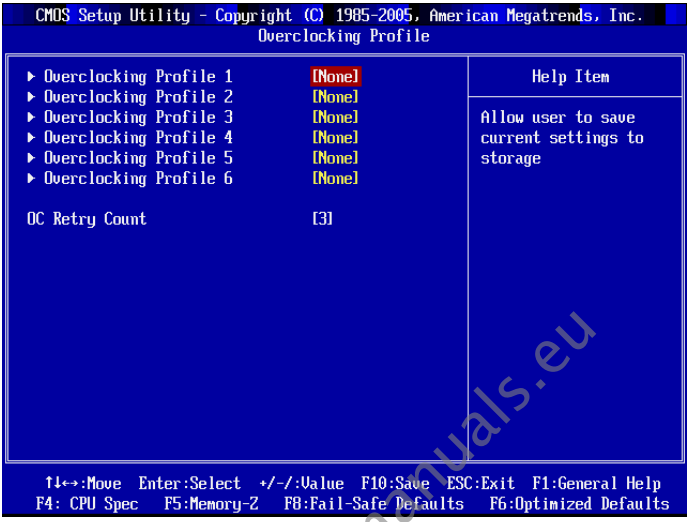
Overclocking Profile


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Overclocking Profile
Overclocking Profile 1 [None]
Overclocking Profile 2 [None]
Overclocking Profile 3 [None]
Overclocking Profile 4 [None]
Overclocking Profile 5 [None]
Overclocking Profile 6 [None]
OC Retry Count [3]
Help Item
Allow user to save current settings to storage
↑↓←→:Move Enter:Select +/-/:Value F10:Save ESC:Exit F1:General Help
F4: CPU Spec F5:Memory-Z F8:Fail-Safe Defaults F6:Optimized Defaults

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▸ Overclocking Profile 1/ 2/ 3/ 4/ 5/ 6

These items are used to save the current settings to selected profile, and they are also used to load the settings from the selected profile.

▸ OC Retry Count

These items is used to reset counts for overclock retring.

Load Fail-Safe/ Optimized Defaults

The two options on the main menu allow users to restore all of the BIOS settings to the default Fail-Safe or Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard. The Fail-Safe Defaults are the default values set by the BIOS vendor for stable system performance.

When you select Load Fail-Safe Defaults, a message as below appears:

Selecting Ok and pressing Enter loads the BIOS default values for the most stable, minimal system performance.

When you select Load Optimized Defaults, a message as below appears:

Selecting Ok and pressing Enter loads the default factory settings for optimal system performance.

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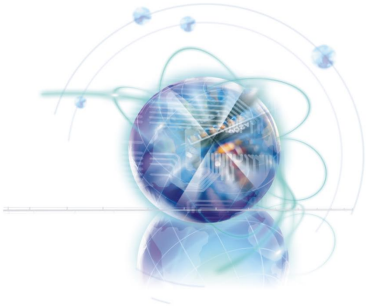

Appendix A

Realtek Audio

The Realtek audio provides 10-channel DAC that simultaneously supports 7.1 sound playback and 2 channels of independent stereo sound output (multiple streaming) through the Front-Out-Left and Front-Out-Right channels.

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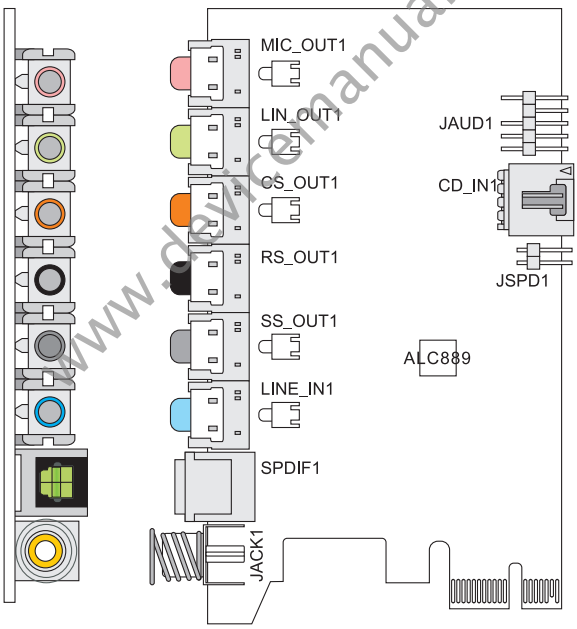
Hardware Setup

Installing the Card

The interface of Realtek ALC889 Audio Card is PCI-E x1. And you can install it to the PCI-E x1 (PCI_E1) slot only.

Follow the steps below to install the audio card, then you can activate the advanced function and enjoy the audio effect.

1. Turn off your computer and disconnect the power cord.
2. Open and remove the case of the computer.
3. Find the PCIE x1 (**PCI_E1**) slot. Only the **PCI_E1** slot supports installing the audio card.
4. Remove the bracket which may obstruct the installed PCI-E slot.
5. Gently but firmly install the Realtek ALC889 Audio Card to the PCI-E slot and secure the card bracket with a screw.
6. Replace and secure the case. Reconnect the power cord to the computer.



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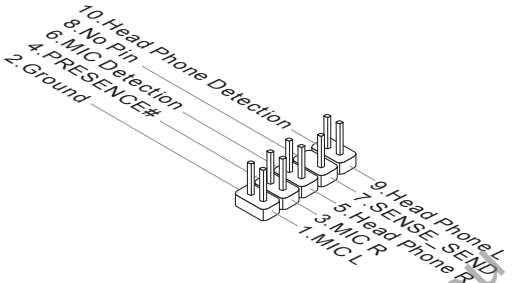
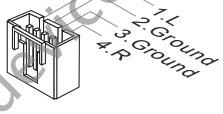
Front Panel Audio Connector: JAUD1

This connector allows you to connect the front panel audio and is compliant with Intel® Front Panel I/O Connectivity Design Guide.



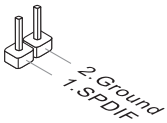
CD-In Connector: CD_IN1

This connector is provided for external audio input.



SPDIF-Out Connector: JSPD1

This connector is used to connect SPDIF (Sony & Philips Digital Interconnect Format) interface for digital audio transmission.



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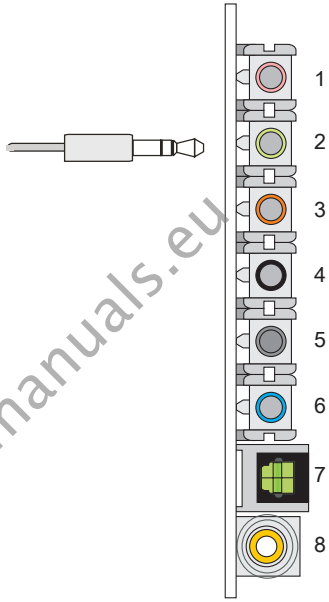
Connecting the Speakers

When you have set the Multi-Channel Audio Function mode properly in the software utility, connect your speakers to the correct phone jacks in accordance with the setting in software utility.

- **2-Channel Mode for Stereo-Speaker Output**

1] MIC
2] Line Out (Front channels)
3] No function
4] No function
5] No function
6] Line In
7] S/PDIF Out - Optical
8] S/PDIF Out - Coaxial



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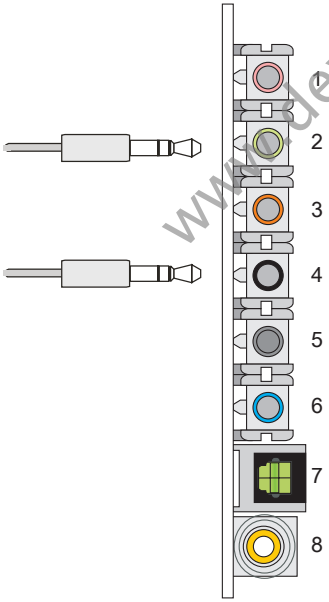
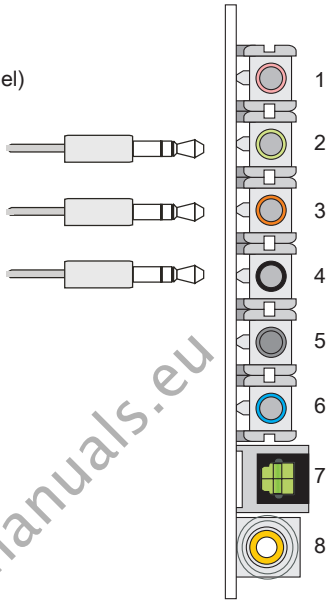


- **4-Channel Mode for Stereo-Speaker Output**

1] MIC
2] Line Out (Front channels)
3] No function
4] Line Out (Rear channels)
5] No function
6] Line In
7] S/PDIF Out - Optical
8] S/PDIF Out - Coaxial

■ 6-Channel Mode for Stereo-Speaker Output

1] MIC
2] Line Out (Front channels)
3] Line Out (Center and Subwoofer channel)
4] Line Out (Rear channels)
5] No function
6] Line In
7] S/PDIF Out - Optical
8] S/PDIF Out - Coaxial



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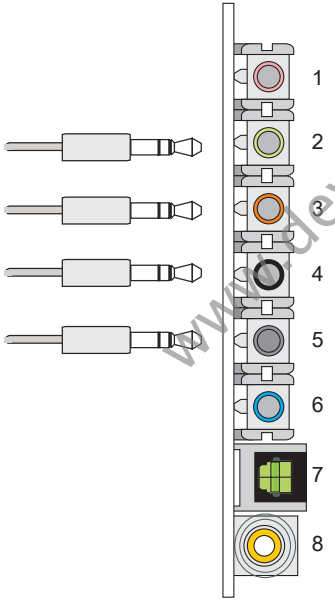

■ 8-Channel Mode for Stereo-Speaker Output

1] MIC
2] Line Out (Front channels)
3] Line Out (Center and Subwoofer channel)
4] Line Out (Rear channels)
5] Line Out (Side channels)
6] Line In
7] S/PDIF Out - Optical
8] S/PDIF Out - Coaxial

Important

To enable 7.1 channel audio-out function on Windows Vista operating system, you have to install the Realtek Audio Driver. Or, the mainboard will support 5.1 channel audio-out only.

Installing the Realtek HD Audio Driver

You need to install the HD audio driver for Realtek audio codec to function properly before you can get access to 2-, 4-, 6-, 8- channel or 7.1+2 channel audio operations. Follow the procedures described below to install the drivers for different operating systems.

Installation for Windows®

For Windows® XP, you must install Windows® XP Service Pack3 or later before installing the driver.

The following illustrations are based on Windows® 7 environment and could look slightly different if you install the drivers in different operating systems.

1. Insert the application DVD into the DVD-ROM drive. The setup screen will automatically appear.
2. Click Driver tab.
3. Click Audio button.

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4. Select Realtek HD Audio Drivers to start installing the drivers.
5. Click Next to install the Realtek High Definition Audio Driver.
6. Follow the on-screen instructions to install drivers.
7. Click Finish to restart the system.

Important

The HD Audio Configuration software utility is under continuous update to enhance audio applications. Hence, the program screens shown here in this section may be slightly different from the latest software utility and shall be held for reference only.

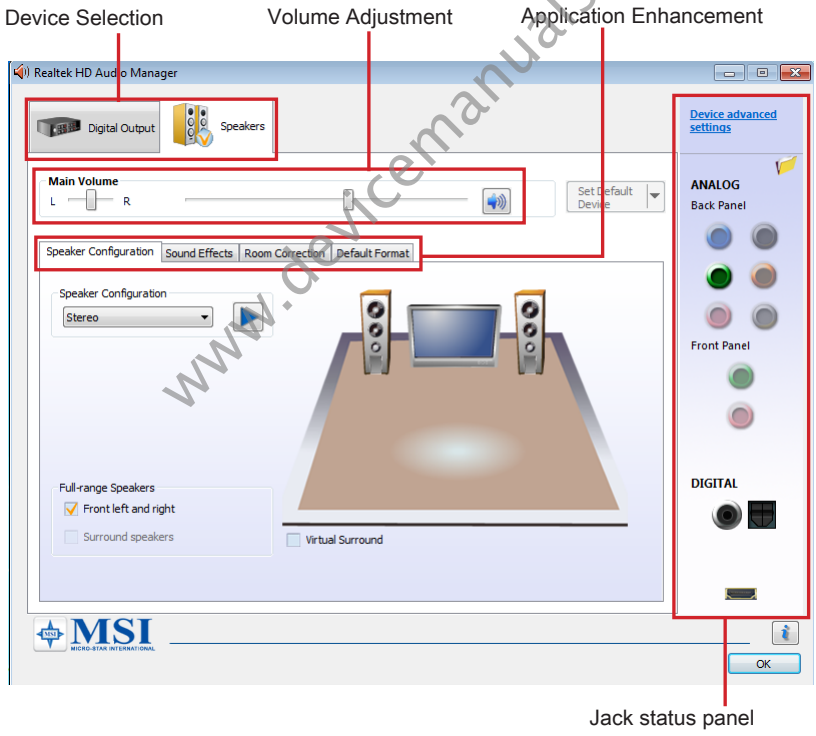
Software Configuration

After installing the audio driver, the “Realtek HD Audio Manager” icon will appear at the notification area (lower right of the screen). You may double click the icon and the GUI will pop up accordingly.

It is also available to enable the audio driver by clicking the **Realtek HD Audio Manager** from the **Control Panel**.

Software panel overview

The following figure describes the function of the Realtek HD Audio Manager panel.



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■ Device Selection

Here you can select a audio output source to change the related options. the “check” sign (in orange) indicates the devices as default.

■ Volume Adjustment

You can control the volume or balance the right/left side of the speakers that you plugged in front or rear panel by adjust the bar.

■ Application Enhancement

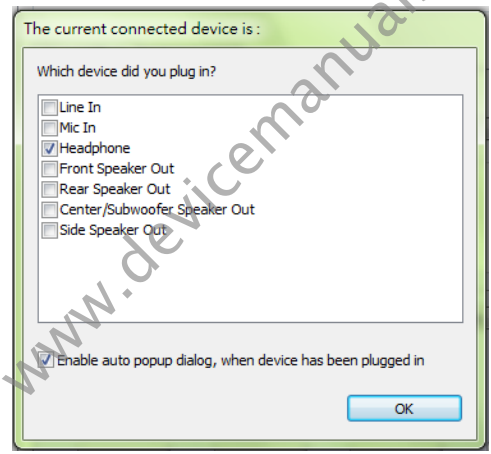
The array of options will provide you a complete guidance of anticipated sound effect for both output and input device.

■ Jack status panel

This panel depicts all render and capture devices currently connected with your computer. Additionally, more applications would be found at the option of “Device Advanced Settings”.

Auto popup dialog

When you plug into the device at the jack, a dialogue window will pop up asking you which device is current connected.



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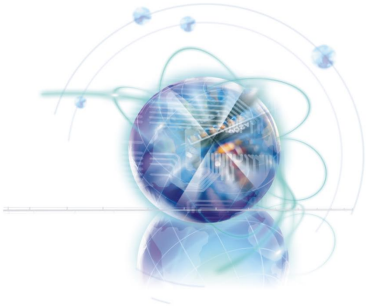
As you know, each jack corresponds to its default setting, you can refer to the next section “Hardware Default Setting”.



Appendix B

Intel RAID

This appendix will assist users in configuring and enabling RAID functionality on platforms

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Introduction

The mainboard comes with the Intel RAID controller that allows you to configure SATA hard drives as RAID sets.

SATA hard drives deliver blistering transfer speeds up to 3 Gb/s. Serial ATA uses long, thin cables, making it easier to connect your drive and improving the airflow inside your PC. The most outstanding features are:

1. Supports 3 Gb/s transfers with CRC error checking.
2. Supports Hot-plug-n-play feature.
3. Data handling optimizations including tagged command queuing, elevator seek and packet chain command.

Intel® RAID controller offers RAID level 0 (Striping), RAID level 1 (Mirroring and Duplexing), RAID level 5 (Block Interleaved Distributed Parity), RAID level 10 (A Stripe of Mirrors) , Intel® Martix Storage Technology and Intel® Rapid Recover Technology.

RAID 0 breaks the data into blocks which are written to separate hard drives. Spreading the hard drive I/O load across independent channels greatly improves I/O performance.

RAID 1 provides data redundancy by mirroring data between the hard drives and provides enhanced read performance.

RAID 5 Provides data striping at the byte level and also stripe error correction information. This results in excellent performance and good fault tolerance. Level 5 is one of the most popular implementations of RAID.

RAID 10 Not one of the original RAID levels, multiple RAID 1 mirrors are created, and a RAID 0 stripe is created over these.

Intel® Matrix RAID Technology is the advanced ability for two RAID volumes to share the combined space of two hard drives being used in unison.

Intel® Rapid Recover Technology utilizes RAID 1 functionality to copy data from a designated Master drive to a designated Recovery drive. The size of the Master drive must be less than or equal to the size of the Recovery drive. When a Recovery volume is created, complete capacity of the Master drive will be used as the Master volume. Only one Recovery Volume can exist on a system. There are 2 methods of updating the data on the Master to the Recovery drive. They are Continuous Update Policy and On Request Update Policy.

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Important

The least number of hard drives for RAID 0, RAID 1, Recovery or Matrix mode is 2. The least number of hard drives for RAID 10 mode is 4. And the least number of hard drives for RAID 5 mode is 3.

All the information/ volumes/ pictures listed in your system might differ from the illustrations in this appendix.

BIOS Configuration

The Intel Matrix Storage Manager Option ROM should be integrated with the system BIOS on all motherboards with a supported Intel chipset. The Intel Matrix Stroage Manager Option ROM is the Intel RAID implementation and provides BIOS and DOS disk services. Please use <Ctrl> + <I> keys to enter the "Intel® RAID for Serial ATA" status screen, which should appear early in system boot-up, during the POST (Power-On Self Test). Also, you need to enable the RAID function in BIOS to create, delete and reset RAID volumes.

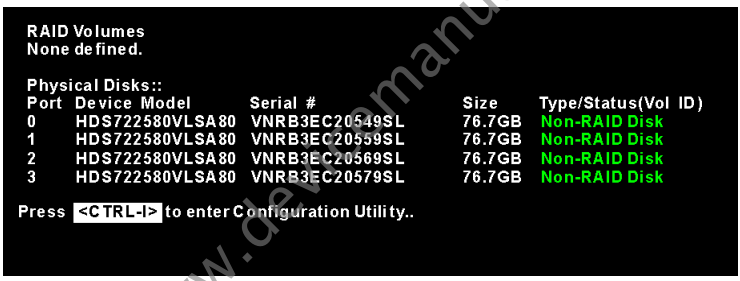
Using the Intel Matrix Stroage Manager Option ROM

Creating, Deleting and Resetting RAID Volumes:

The Serial ATA RAID volume may be configured using the RAID Configuration utility stored within the Intel RAID Option ROM. During the Power-On Self Test (POST), the following message will appear for a few seconds:

Important

The "Drvice Model", "Serial #" and "Size" in the following example might be different from your system.


RAID Volumes
None defined.
Physical Disks::
Port Device Model Serial # Size Type/Status(Vol ID)
0 HDS722580VLSA80 VNRB3EC20549SL 76.7GB Non-RAID Disk
1 HDS722580VLSA80 VNRB3EC20559SL 76.7GB Non-RAID Disk
2 HDS722580VLSA80 VNRB3EC20569SL 76.7GB Non-RAID Disk
3 HDS722580VLSA80 VNRB3EC20579SL 76.7GB Non-RAID Disk
Press <CTRL-I> to enter Configuration Utility..

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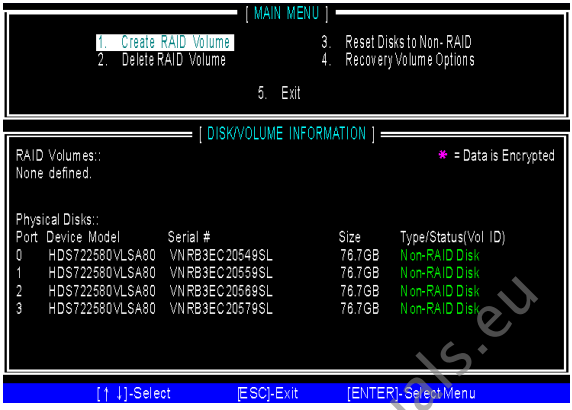
After the above message shows, press <Ctrl> and <I> keys simultaneously to enter the RAID Configuration Utility.

Important

The following procedure is only available with a newly-built system or if you are reinstalling your OS. It should not be used to migrate an existing system to RAID.

After pressing the <Ctrl> and <I> keys simultaneously, the following window will appear:


[MAIN MENU]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non- RAID
4. Recovery Volume Options
5. Exit
[DISK/VOLUME INFORMATION]
RAID Volumes::
None defined.
* = Data is Encrypted
Physical Disks::
Port Device Model Serial # Size Type/Status(Vol ID)
0 HDS722580VLSA80 VNRB3EC20549SL 76.7GB Non-RAID Disk
1 HDS722580VLSA80 VNRB3EC20559SL 76.7GB Non-RAID Disk
2 HDS722580VLSA80 VNRB3EC20569SL 76.7GB Non-RAID Disk
3 HDS722580VLSA80 VNRB3EC20579SL 76.7GB Non-RAID Disk
[↑ ↓]-Select [ESC]-Exit [ENTER]-Select Menu

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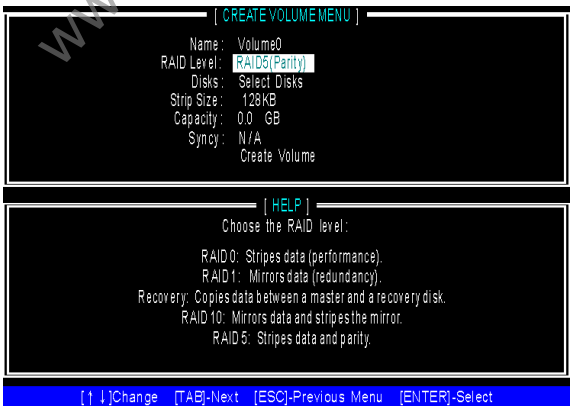
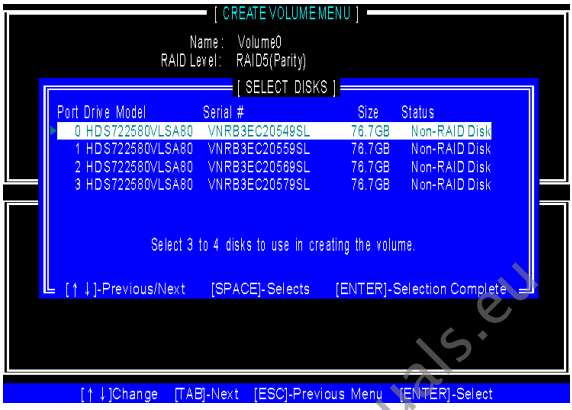
- **Create RAID Volume**

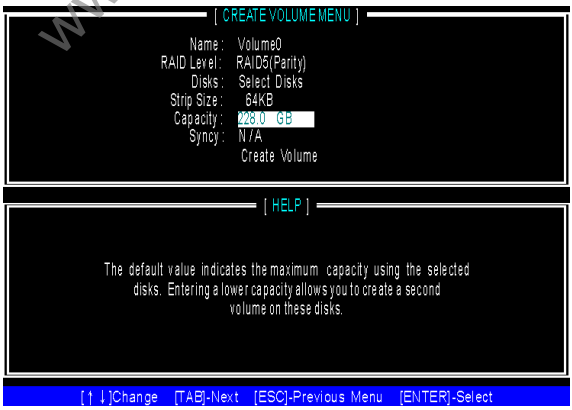
1. Select option 1 Create RAID Volume" and press <Enter> key. The following screen appears. Then in the Name field, specify a RAID Volume name and then press the <TAB> or <Enter> key to go to the next field.
2. Use the arrow keys to select the RAID level best suited to your usage model in RAID Level.


[CREATE VOLUME MENU]
Name: Volume0
RAID Level: RAID5(Parity)
Disks: Select Disks
Strip Size: 128KB
Capacity: 0.0 GB
Syncy: N/A
Create Volume
[HELP]
Choose the RAID level:
RAID 0: Stripes data (performance).
RAID 1: Mirrors data (redundancy).
Recovery: Copies data between a master and a recovery disk.
RAID 10: Mirrors data and stripes the mirror.
RAID 5: Stripes data and parity.
[↑ ↓]Change [TAB]-Next [ESC]-Previous Menu [ENTER]-Select

3. In the Disk field, press <Enter> key and the following screen appears. Use <Space> key to select the disks you want to create for the RAID volume, then click <Enter> key to finish selection.


[CREATE VOLUME MENU]
Name: Volume0
RAID Level: RAID5(Parity)
[SELECT DISKS]
Port Drive Model Serial # Size Status
0 HDS722580VLSA80 VNRB3EC20549SL 76.7GB Non-RAID Disk
1 HDS722580VLSA80 VNRB3EC20559SL 76.7GB Non-RAID Disk
2 HDS722580VLSA80 VNRB3EC20569SL 76.7GB Non-RAID Disk
3 HDS722580VLSA80 VNRB3EC20579SL 76.7GB Non-RAID Disk
Select 3 to 4 disks to use in creating the volume.
[↑ ↓]-Previous/Next [SPACE]-Selects [ENTER]-Selection Complete
[↑ ↓]Change [TAB]-Next [ESC]-Previous Menu [ENTER]-Select

4. Then select the strip value for the RAID array by using the “upper arrow” or “down arrow” keys to scroll through the available values, and pressing the <Enter> key to select and advance to the next field. The available values range from 4KB to 128 KB in power of 2 increments. The strip value should be chosen based on the planned drive usage. Here are some typical values: RAID0 -128KB / RAID10 - 64KB / RAID5 - 64KB.
5. Then select the capacity of the volume in the Capacity field. The default value is the maximum volume capacity of the selected disks.


[CREATE VOLUME MENU]
Name: Volume0
RAID Level: RAID5(Parity)
Disks: Select Disks
Strip Size: 64KB
Capacity: 228.0 GB
Syncy: N/A
Create Volume
[HELP]
The default value indicates the maximum capacity using the selected disks. Entering a lower capacity allows you to create a second volume on these disks.
[↑ ↓]Change [TAB]-Next [ESC]-Previous Menu [ENTER]-Select

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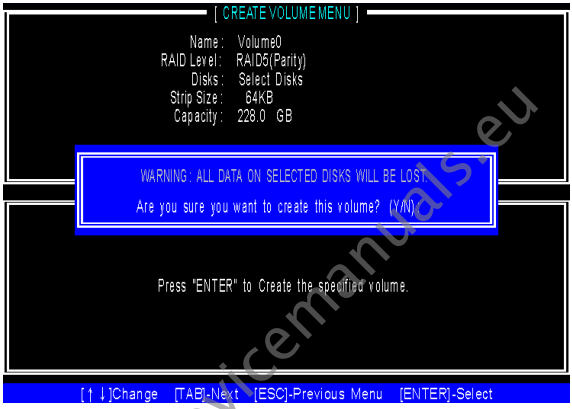
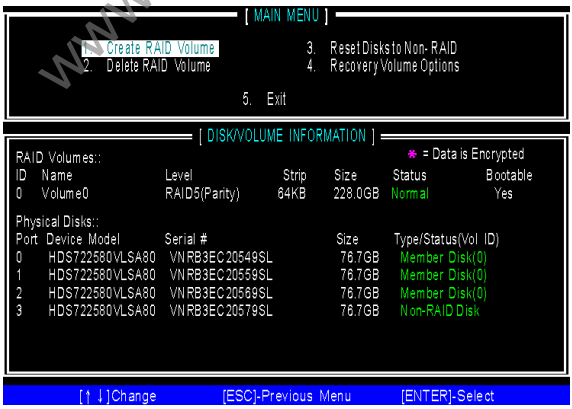
Important

Since you want to create two volumes (Intel Matrix RAID Technology), this default size (maximum) needs to be reduced. Type in a new size for the first volume. As an example: if you want the first volume to span the first half of the two disks, re-type the size to be half of what is shown by default. The second volume, when created, will automatically span the remainder of two hard drives.

6. Then the following screen appears for you to confirm if you are sure to create the RAID volume. Press <Y> to continue.


[CREATE VOLUME MENU]
Name: Volume0
RAID Level: RAID5(Parity)
Disks: Select Disks
Strip Size: 64KB
Capacity: 228.0 GB
WARNING: ALL DATA ON SELECTED DISKS WILL BE LOST.
Are you sure you want to create this volume? (Y/N):
Press "ENTER" to Create the specified volume.
[↑ ↓]Change [TAB]-Next [ESC]-Previous Menu [ENTER]-Select

7. Then the following screen appears to indicate that the creation is finished.


[MAIN MENU]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Recovery Volume Options
5. Exit
[DISK/VOLUME INFORMATION]
RAID Volumes::
* = Data is Encrypted
ID Name Level Strip Size Status Bootable
0 Volume0 RAID5(Parity) 64KB 228.0GB Normal Yes
Physical Disks::
Port Device Model Serial # Size Type/Status(Vol ID)
0 HDS722580VLSA80 VNRB3EC20549SL 76.7GB Member Disk(0)
1 HDS722580VLSA80 VNRB3EC20559SL 76.7GB Member Disk(0)
2 HDS722580VLSA80 VNRB3EC20569SL 76.7GB Member Disk(0)
3 HDS722580VLSA80 VNRB3EC20579SL 76.7GB Non-RAID Disk
[↑ ↓]Change [ESC]-Previous Menu [ENTER]-Select

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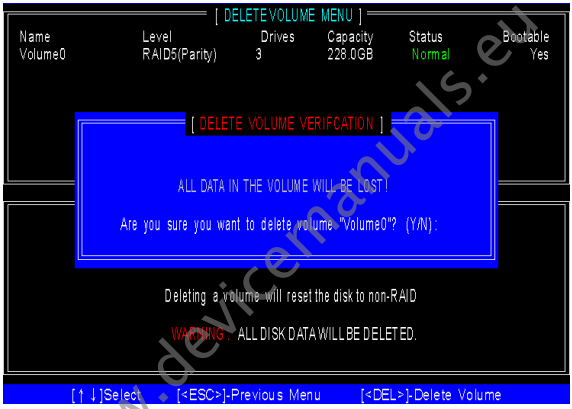
- **Delete RAID Volume**

  Here you can delete the RAID volume, but please be noted that all data on RAID drives will be lost.

Important

If your system currently boots to RAID and you delete the RAID volume in the Intel RAID Option ROM, your system will become unbootable.

Select option 2 **Delete RAID Volume** from the main menu window and press <Enter> key to select a RAID volume for deletion. Then press <Delete> key to delete the selected RAID volume. The following screen appears.



Press <Y> key to accept the volume deletion.

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- **Reset Disks to Non-RAID**

  Select option 3 Reset Disks to Non-RAID and press <Enter> to delete the RAID volume and remove any RAID structures from the drives. The following screen appears:

[MAIN MENU]
1. Create RAID Volume
[RESET RAID DATA]
Resetting RAID data will remove internal RAID structures
from the selected RAID disks. By removing these structures,
the drive will revert back to a Non-RAID disk.
WARNING: Resetting a disk causes all data on the disk to be lost.
Port Drive Model Serial # Size Status
0 HDS722580VLSA80 VNRB3EC20549SL 76.7GB Member Disk(0)
1 HDS722580VLSA80 VNRB3EC20559SL 76.7GB Member Disk(0)
2 HDS722580VLSA80 VNRB3EC20589SL 76.7GB Member Disk(0)
Select the disks that should be reset.
[↑ ↓]-Previous/Next [SPACE]-Selects [ENTER]-Selection Complete
[↑ ↓]-Select [ESC]-Elit [ENTER]-Select Menu

Press <Y> key to accept the selection.

Important

- *You will lose all data on the RAID drives and any internal RAID structures when you perform this operation.*
- *Possible reasons to "Reset Disks to Non-RAID" could include issues such as incompatible RAID configurations or a failed volume or failed disk.*

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- **Recovery Volume Options**

  Select option 4 Recovery Volume Options and press <Enter> to change recovery volume mode. The following screen appears:

[RECOVERY VOLUME OPTIONS]
1. Enable Only Recovery Disk
2. Enable Only Master Disk
[HELP]
Enable Only Recovery Disk - enables recovery disk if available and disables master disk.
Enable Only Master Disk - enables master disk if available and disables recovery disk.
Actions will result in change from Continuous Update mode to On-Request.
[↑ ↓]Change [TAB]-Next [ESC]-Previous Menu [ENTER]-Select

  Recovery mode will change from Continuous Update to On-Request after you enable “Only Recovery Disk” or “Only Master Disk”.

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Installing Driver

Install Driver in Windows 7/ Vista / XP

■ **New Windows 7/ Vista / XP Installation**

The following details the installation of the drivers while installing operating system.

1. When you start installing Windows XP, you may encounter a message stating, "Setup could not determine the type of one or more mass storage devices installed in your system". If this is the case, then you are already in the right place and are ready to supply the driver. If this is not the case, then press F6 when prompted at the beginning of Windows setup.
2. Press the "S" key to select "Specify Additional Device".
3. You should be prompted to insert a floppy disk containing the Intel® RAID driver into the A: drive.
   Note: For Windows XP, you can use the USB floppy drive only.
   For Windows Vista/ Windows 7 you can use CD/ DVD/ USB drive.

Important

Please follow the instruction below to make an "Intel® RAID Driver" for yourself.

- *Insert the MSI DVD into the DVD-ROM drive.*
- *Click the "Browse DVD" on the Setup screen.*
- *Copy all the contents in \\RAID\ Intel\ PCH\ f6flpy 32 or f6flpy 64 to a formatted floppy diskette.*
- *The driver diskette for Intel® PCH RAID Controller is done.*

4. For Windows Vista/ Windows 7:
   During the Operating system installation, after selecting the location to install Vista / Windows 7 click on "Load Driver" button to install a third party SCSI or RAID driver.
5. When prompted, insert the floppy disk or media (CD/DVD or USB) you created in step 3 and press Enter.
6. You should be shown a list of available SCSI Adapters.
7. Select the appropriate Intel RAID controller and press ENTER.
8. The next screen should confirm that you have selected the Intel® RAID controller. Press ENTER again to continue.
9. You have successfully installed the Intel® Matrix Storage Manager driver, and Windows setup should continue.
10. Leave the disk in the floppy drive until the system reboots itself. Windows setup will need to copy the files from the floppy again after the RAID volume is formatted, and Windows setup starts copying files.

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■ Existing Windows Vista/ Windows 7/ XP Driver Installation

1. Insert the MSI DVD into the DVD-ROM drive.
2. The DVD will auto-run and the setup screen will appear.
3. Under the Driver tab, click on Intel RAID Drivers.
4. The drivers will be automatically installed.

■ Confirming Windows Vista/ Windows 7/ XP Driver Installation

1. From Windows 7/ Vista/ XP, open the Control Panel from My Computer followed by the System icon.
2. Choose the Hardware tab, then click the Device Manager tab.
3. Click the “+” in front of the SCSI and RAID Controllers hardware type. The driver Intel(R) PCH SATA RAID Controller should appear.

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Degraded RAID Array

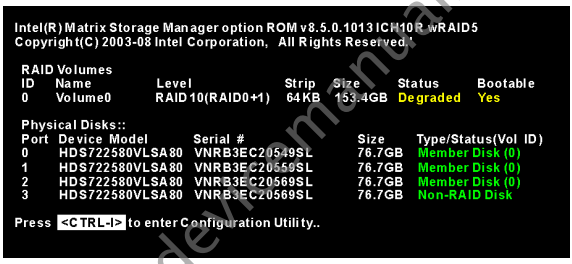
A RAID 1, RAID 5 or RAID 10 volume is reported as degraded when one of its hard drive members fails or is temporarily disconnected, and data mirroring is lost. As a result, the system can only utilize the remaining functional hard drive member. To re-establish data mirroring and restore data redundancy, refer to the procedure below that corresponds to the current situation.

Missing Hard Drive Member

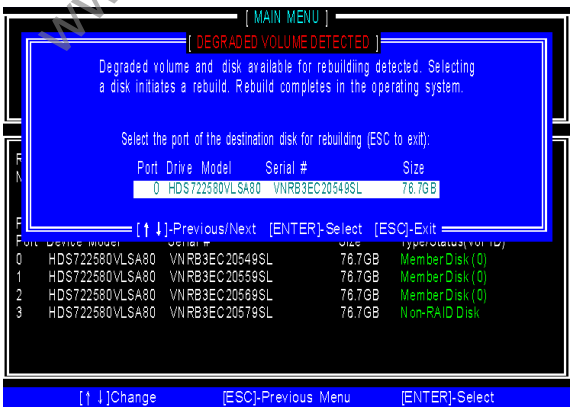
1. Make sure the system is powered off.
2. Reconnect the hard drive.
3. Reboot the system to Windows; the rebuild will occur automatically.

Failed Hard Drive Member

1. Make sure the system is powered off.
2. Replace the failed hard drive with a new one that is of equal or greater capacity.
3. Reboot the system to Intel RAID Option ROM by press <Ctrl> and <I> keys simultaneously during the Power-On Self Test (POST).


Intel(R) Matrix Storage Manager option ROM v8.5.0.1013 ICH10R wRAID5
Copyright(C) 2003-08 Intel Corporation, All Rights Reserved.
RAID Volumes
ID Name Level Strip Size Status Bootable
0 Volume0 RAID10(RAID0+1) 64KB 153.4GB Degraded Yes
Physical Disks::
Port Device Model Serial # Size Type/Status(Vol ID)
0 HDS722580VLSA80 VNRB3EC20549SL 76.7GB Member Disk (0)
1 HDS722580VLSA80 VNRB3EC20559SL 76.7GB Member Disk (0)
2 HDS722580VLSA80 VNRB3EC20569SL 76.7GB Member Disk (0)
3 HDS722580VLSA80 VNRB3EC20569SL 76.7GB Non-RAID Disk
Press <CTRL-I> to enter Configuration Utility..

4. Select the port of the destination disk for rebuilding, and then press ENTER.


[MAIN MENU]
[DEGRADED VOLUME DETECTED]
Degraded volume and disk available for rebuilding detected. Selecting a disk initiates a rebuild. Rebuild completes in the operating system.
Select the port of the destination disk for rebuilding (ESC to exit):
Port Drive Model Serial # Size
0 HDS722580VLSA80 VNRB3EC20549SL 76.7GB
[↑ ↓]-Previous/Next [ENTER]-Select [ESC]-Exit
0 HDS722580VLSA80 VNRB3EC20549SL 76.7GB Member Disk (0)
1 HDS722580VLSA80 VNRB3EC20559SL 76.7GB Member Disk (0)
2 HDS722580VLSA80 VNRB3EC20569SL 76.7GB Member Disk (0)
3 HDS722580VLSA80 VNRB3EC20579SL 76.7GB Non-RAID Disk
[↑ ↓]Change [ESC]-Previous Menu [ENTER]-Select

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5. Exit Intel RAID Option ROM, and then reboot to Windows system.
6. When prompted to rebuild the RAID volume, click 'Yes'.
7. The Intel(R) Storage Utility will be launched. Right-click the new hard drive and select 'Rebuild to this Disk'. The 'Rebuild Wizard' will be launched which will guide you through the process of rebuilding to the new hard drive.

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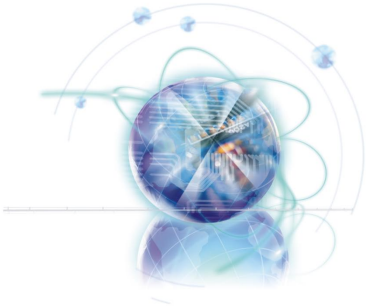

Appendix C

JMicron 322 RAID

This appendix will assist users in configuring and enabling RAID functionality on platform.

The DRIVER BOOSTER MANAGER solution supports RAID level 0 (striping), RAID level 1 (mirroring) and JBOD (Concatenate).

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Introduction

DRIVER BOOSTER MANAGER offers RAID level 0 (Striping), RAID level 1 (Mirroring and Duplexing)and JBOD (Concatenate) for SATA ports on this mainboard.

RAID 0 breaks the data into blocks which are written to separate hard drives. Spreading the hard drive I/O load across independent channels greatly improves I/O performance.

RAID 1 provides data redundancy by mirroring data between the hard drives and provides enhanced read performance.

JBOD provides a method for combining drives of different sizes into one large disk.

Important

- *The least number of hard drives for RAID 0, RAID 1 or JBOD mode is 2. All the information/ volumes/ pictures listed in your system might differ from the illustrations in this appendix.*

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RAID Configuration

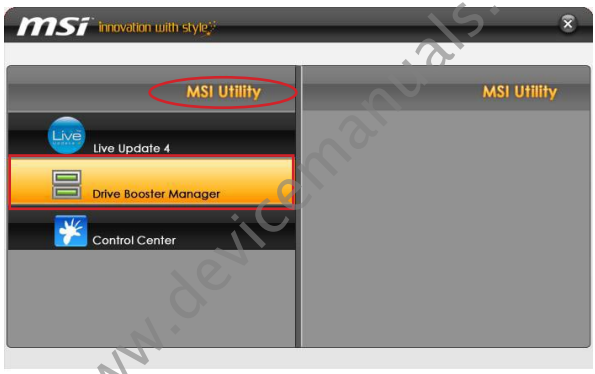
There is an application called DRIVE BOOSTER MANAGER which helps you perform the following tasks of JMicron RAID.

- Viewing SATA Drive information
- Creating RAID Arrays
- Deleting RAID

Installing the DRIVE BOOSTER MANAGER

Follow the procedures described below to install the Drive Booster Manager.

1. Insert the application DVD into the DVD-ROM drive. The setup screen will automatically appear.
2. Click **Utility**. And then click **MSI Utility**.
3. Click **Drive Booster Manager** to install it.



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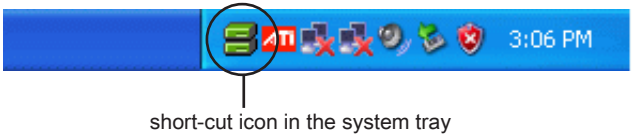
Activating DRIVE BOOSTER MANAGER

Once you have your Drive Booster Manager installed, it will have a short cut icon on the desktop. You may double-click on each icon to activate Drive Booster Manager.

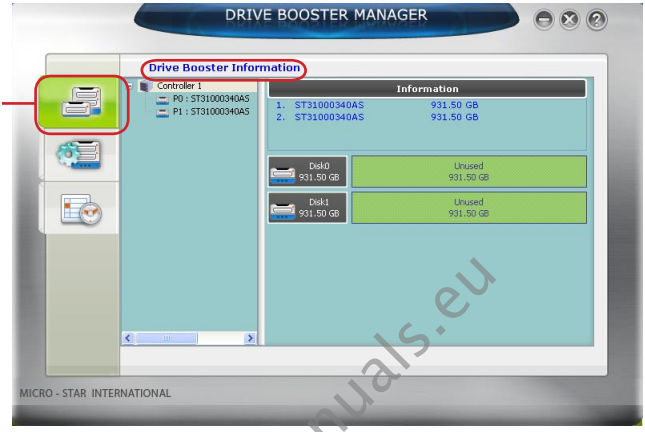


short-cut icon in the system tray

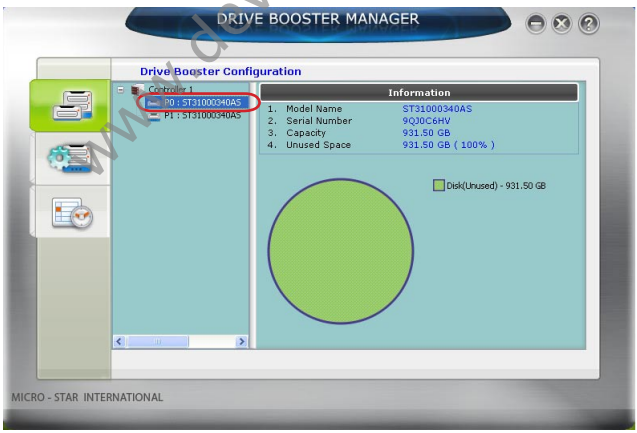
View SATA Drive Information

Click the “Drive Booster Information” button and the information of all hard disks will display on the right side of the window. You may click the item “Controller” you will find

“Drive Booster Information” button



Or you may click the SATA drive item just below the item “Controller” you will find SATA drive information.



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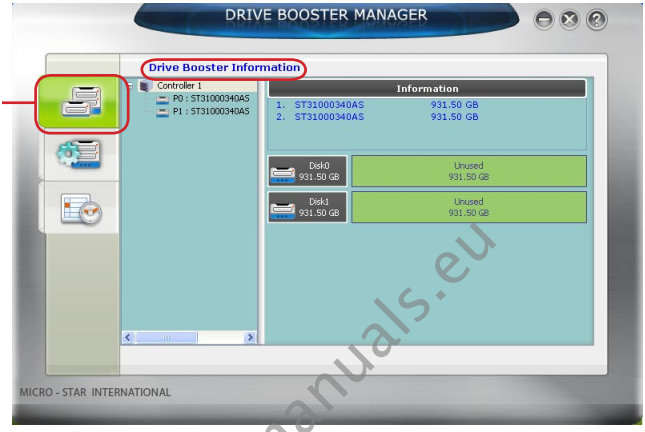
Create RAID

DRIVE BOOSTER MANAGER supports the creation of RAID 0, 1 and JBOD.

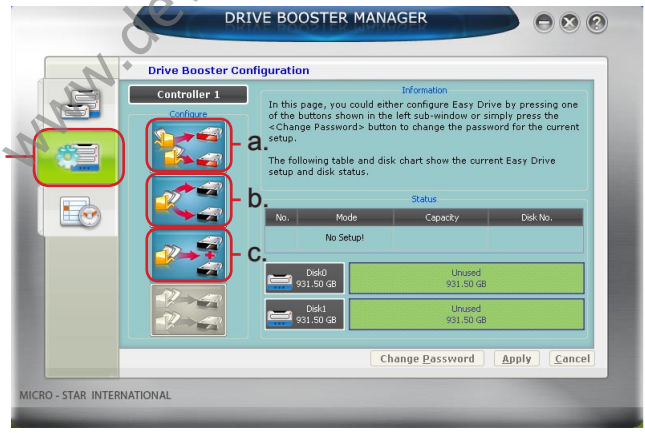
1. First, you have to choose a controller, that supports 2 SATA devices with RAID mode, in the Drive Booster Information screen.

"Drive Booster Information" button



2. Click the "Drive Booster Configuration" button, and select a RAID mode you want to create. Then click the "Apply" to apply the RAID creation.

"Drive Booster Configuration" button



a. The speed mode corresponds to the RAID 0 mdoe.

b. The Backup mode corresponds to the RAID 1 mdoe.

c. The Large mode corresponds to the JBOD mdoe.

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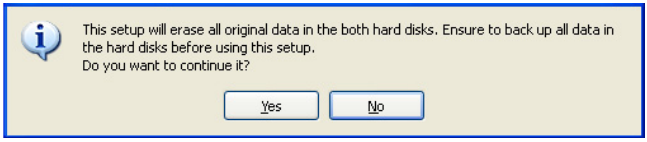
3. A warning message will appear to remind you that the data will be erased. Press "Yes" if you really want to perform this creation.


This setup will erase all original data in the both hard disks. Ensure to back up all data in the hard disks before using this setup.
Do you want to continue it?
Yes
No

Important

You will lose all data on the SATA drives when you perform this creation. Please ensure to back up all date in the SATA hard drives before performing this creation.

4. A information will appear to inform you that the creation is finished. Click "OK" to close the information window.

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Setup Password

You may set a password for a volume. Click the “Change Password” a screen will display. Please enter a new password in the “New Password” box,and enter the password again in the “confirm password” box to confirm the passsword. Then click OK.

DRIVE BOOSTER MANAGER
Setup Password
Please enter the new password. If you don't want to set any password, just keep it empty.
Old Password
New Password
Confirm Password
OK

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Important

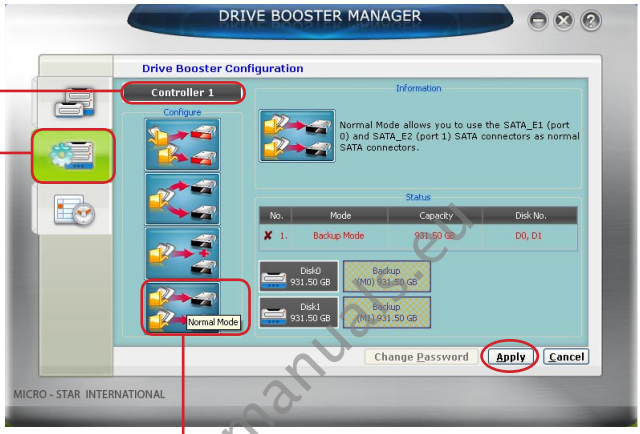
A password is available for a volume only. That is to say, if you set a password for a volume and you will be asked to enter the password when you intend to apply a configuration to the volume.

Delete RAID

1. First, you have to choose a volume that you intend to delete RAID mode in the Drive Booster Information screen.
2. Click the “Drive Booster Configuration” button, and click the “Normal Mode” button. And then, click “Apply” to remove the RAIID mode.

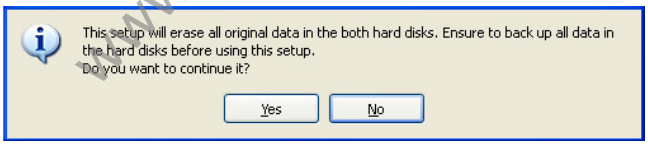
Please confirm the volume is the one you intend to delete.

“Drive Booster Configuration” button



“Normal Mode” button

3. A warning message will appear to remind you that the data will be erased. Press the “Yes” if you really want to perform this task.


This setup will erase all original data in the both hard disks. Ensure to back up all data in the hard disks before using this setup.
Do you want to continue it?
Yes
No

Important

You will lose all data on the SATA drives when you perform this task. Please ensure to back up all date in the SATA hard drives before performing this task.

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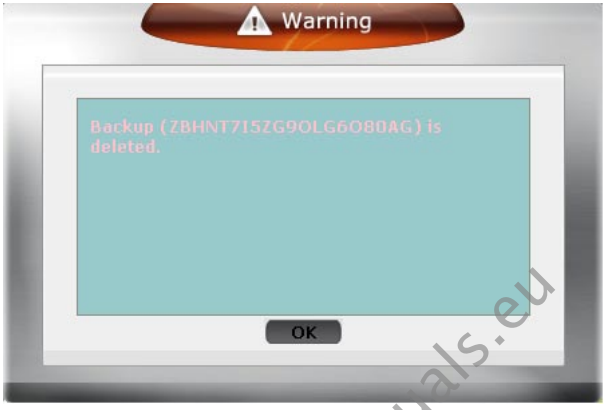
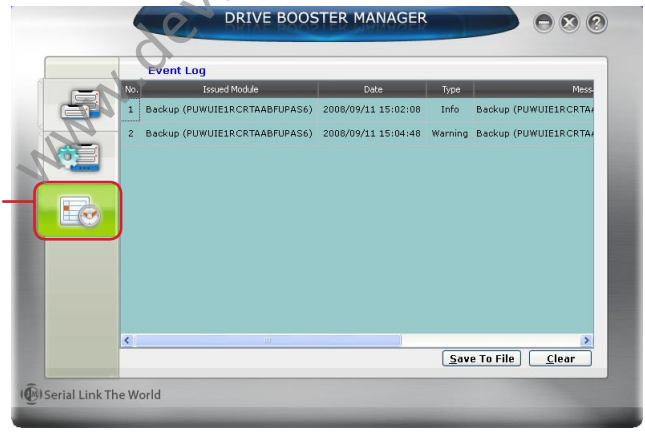
4. A warning will appear to inform you that the deletion is finished. Click “OK” to close the window.



Event Log

Click the “Event Log” button, all of the significant events will be listed.



“Event Log” button

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